NOTICE

NASA Technical Memorandum 3287/REV1

THERMODYNAMIC DATA FOR FIFTY REFERENCE ELEMENTS

Bonnie J. McBride, Sanford Gordon, and Martin Reno

February 2001

This revised printing differs from the initial printing in two ways: minor changes were made to table V and a table of contents was added. It does not contain revised data.

NASA Technical Paper 3287/REV1

February 2001

Thermodynamic Data for Fifty Reference Elements

Bonnie J. McBride,
Sanford Gordon,
and Martin A. Reno

National Aeronautics and
Space Administration

NASA Technical Paper 3287/REV1

February 2001

Thermodynamic Data for Fifty Reference Elements

Bonnie J. McBride
Glenn Research Center
Cleveland, Ohio

Sanford Gordon
Sanford Gordon and Associates
Cleveland, Ohio

Martin A. Reno
Heidelberg College
Tiffin, Ohio

National Aeronautics and
Space Administration

Table of Contents

Summary 1

Introduction 1

Symbols 1

Standard States, Reference States, and Fundamental Constants 2

Sources for Thermodynamic Functions 2

Empirical Equations for Fitting the Thermodynamic Functions 3

Assigned Enthalpy Values 3

Heats of Formation and Equilibrium Constants 3

Least-Squares Fit 4

Tables 4

Concluding Remarks 5

References 6

Table I.—Symbols, Phases, Reference Codes, Temperature Ranges, References, and Notes 7

Table II.—Thermodynamic Functions at 298.15 K 12

Table III.1.—Selected Thermodynamic Functions for Ag(cr,ℓ) 14

Table III.2.—Selected Thermodynamic Functions for Al(cr,ℓ) 15

Table III.3.—Selected Thermodynamic Functions for Ar 16

Table III.4.—Selected Thermodynamic Functions for B(β,ℓ) 18

Table III.5.—Selected Thermodynamic Functions for Ba(cr,ℓ) 20

Table III.6.—Selected Thermodynamic Functions for Be(α,β,ℓ) 22

Table III.7.—Selected Thermodynamic Functions for Br_2(cr,ℓ) 24

Table III.8.—Selected Thermodynamic Functions for C(gr) 26

Table III.9.—Selected Thermodynamic Functions for Ca(α,β,ℓ) 28

Table III.10.—Selected Thermodynamic Functions for Cd(cr,ℓ) 30

Table III.11.—Selected Thermodynamic Functions for Cl_2 31

Table III.12.—Selected Thermodynamic Functions for Co(α,β,ℓ) 32

Table III.13.—Selected Thermodynamic Functions for Cr(cr,ℓ) 33

Table III.14.—Selected Thermodynamic Functions for Cs(cr,ℓ) 34

Table III.15.—Selected Thermodynamic Functions for Cu(cr,ℓ) 35

Table III.16.—Selected Thermodynamic Functions for D_2 36

Table III.17.—Selected Thermodynamic Functions for Electron Gas 38

Table III.18.—Selected Thermodynamic Functions for F_2 40

Table III.19.—Selected Thermodynamic Functions for Fe($\alpha,\gamma,\delta,\ell$) 41

Table III.20.—Selected Thermodynamic Functions for Ge(cr,ℓ) 43

Table III.21.—Selected Thermodynamic Functions for H_2 44

Table III.22.—Selected Thermodynamic Functions for He 46

Table III.23.—Selected Thermodynamic Functions for Hg(cr,ℓ) 48

Table III.24.—Selected Thermodynamic Functions for I_2(cr,ℓ) 49

Table III.25.—Selected Thermodynamic Functions for K(cr,ℓ) 51

Table III.26.—Selected Thermodynamic Functions for Kr 52

Table III.27.—Selected Thermodynamic Functions for Li(cr,ℓ) 54

Table III.28.—Selected Thermodynamic Functions for Mg(cr,ℓ) 55

Table III.29.—Selected Thermodynamic Functions for Mn($\alpha,\beta,\gamma,\delta,\ell$) 57

Table III.30.—Selected Thermodynamic Functions for Mo(cr,ℓ) 58

Table III.31.—Selected Thermodynamic Functions for N_2 59

Table III.32.—Selected Thermodynamic Functions for Na(cr,ℓ) 61

Table III.33.—Selected Thermodynamic Functions for Nb(cr,ℓ) 62

Table III.34.—Selected Thermodynamic Functions for Ne 63

Table III.35.—Selected Thermodynamic Functions for Ni(cr,ℓ) 65

Table III.36.—Selected Thermodynamic Functions for O_2 66

Table III.37.—Selected Thermodynamic Functions for P(cr,white,ℓ) 68

Table III.38.—Selected Thermodynamic Functions for Pb(cr,ℓ) 69

Table III.39.—Selected Thermodynamic Functions for Rb(cr,ℓ) 70

Table III.40.—Selected Thermodynamic Functions for S(α,β,ℓ) 71

Table III.41.—Selected Thermodynamic Functions for Si(cr,ℓ) 72

Table III.42.—Selected Thermodynamic Functions for Sn(cr,ℓ) 73

Table III.43.—Selected Thermodynamic Functions for Sr(α,β,ℓ) 74

Table III.44.—Selected Thermodynamic Functions for Ta(cr,ℓ) 75

Table III.45.—Selected Thermodynamic Functions for Th(α,β,ℓ) 76

Table III.46.—Selected Thermodynamic Functions for Ti(α,β,ℓ) 77

Table III.47.—Selected Thermodynamic Functions for U(α,β,γ,ℓ) 78

Table III.48.—Selected Thermodynamic Functions for V(cr,ℓ) 79

Table III.49.—Selected Thermodynamic Functions for W(cr,ℓ) 80

Table III.50.—Selected Thermodynamic Functions for Xe 81

Table III.51.—Selected Thermodynamic Functions for Zn(cr,ℓ) 83

Table III.52.—Selected Thermodynamic Functions for Zr(α,β,ℓ) 84

Table IV.—Enthalpy and Gibbs Energy Input for PAC91 (EFdata) 85

Table V.—Format for 9-Constant Functional Form 123

Table VI.—Coefficients for the 9-Constant Functional Form 124

Table VII.—Format for the 7-Constant Polynomial Form (Old Format) 135

Table VIII.—Coefficients for the 7-Constant Functional Form 136

Table IX.1.—Thermodynamic Functions From Coefficients for Ag(cr,ℓ) 143

Table IX.2.—Thermodynamic Functions From Coefficients for Al(cr,ℓ) 144

Table IX.3.—Thermodynamic Functions From Coefficients for Ar 145

Table IX.4.—Thermodynamic Functions From Coefficients for B(β,ℓ) 147

Table IX.5.—Thermodynamic Functions From Coefficients for Ba(cr,ℓ) 148

Table IX.6.—Thermodynamic Functions From Coefficients for Be(α,β,ℓ) 149

Table IX.7.—Thermodynamic Functions From Coefficients for Br_2(cr,ℓ) 150

Table IX.8.—Thermodynamic Functions From Coefficients for C(gr) 151

Table IX.9.—Thermodynamic Functions From Coefficients for Ca(α,β,ℓ) 152

Table IX.10.—Thermodynamic Functions From Coefficients for Cd(cr,ℓ) 153

Table IX.11.—Thermodynamic Functions From Coefficients for Cl_2 154

Table IX.12.—Thermodynamic Functions From Coefficients for Co(α,β,ℓ) 155

Table IX.13.—Thermodynamic Functions From Coefficients for Cr(cr,ℓ) 156

Table IX.14.—Thermodynamic Functions From Coefficients for Cs(cr,ℓ) 157

Table IX.15.—Thermodynamic Functions From Coefficients for Cu(cr,ℓ) 158

Table IX.16.—Thermodynamic Functions From Coefficients for D_2 159

Table IX.17.—Thermodynamic Functions From Coefficients for Electron Gas 161

Table IX.18.—Thermodynamic Functions From Coefficients for F_2 163

Table IX.19.—Thermodynamic Functions From Coefficients for Fe($\alpha,\gamma,\delta,\ell$) 164

Table IX.20.—Thermodynamic Functions From Coefficients for Ge(cr,ℓ) 165

Table IX.21.—Thermodynamic Functions From Coefficients for H_2 166

Table IX.22.—Thermodynamic Functions From Coefficients for He 168

Table IX.23.—Thermodynamic Functions From Coefficients for Hg(cr,ℓ) 170

Table IX.24.—Thermodynamic Functions From Coefficients for I_2(cr,ℓ) 171

Table IX.25.—Thermodynamic Functions From Coefficients for K(cr,ℓ) 172

Table IX.26.—Thermodynamic Functions From Coefficients for Kr 173

Table IX.27.—Thermodynamic Functions From Coefficients for Li(cr,ℓ) 175

Table IX.28.—Thermodynamic Functions From Coefficients for Mg(cr,ℓ) 176

Table IX.29.—Thermodynamic Functions From Coefficients for Mn($\alpha,\beta,\gamma,\delta,\ell$) 177

Table IX.30.—Thermodynamic Functions From Coefficients for Mo(cr,ℓ) 178

Table IX.31.—Thermodynamic Functions From Coefficients for N_2 179

Table IX.32.—Thermodynamic Functions From Coefficients for Na(cr,ℓ) 181

Table IX.33.—Thermodynamic Functions From Coefficients for Nb(cr,ℓ) 182

Table IX.34.—Thermodynamic Functions From Coefficients for Ne 183

Table IX.35.—Thermodynamic Functions From Coefficients for Ni(cr,ℓ) 185

Table IX.36.—Thermodynamic Functions From Coefficients for O_2 186

Table IX.37.—Thermodynamic Functions From Coefficients for P(cr,white,ℓ) 188

Table IX.38.—Thermodynamic Functions From Coefficients for Pb(cr,ℓ) 189

Table IX.39.—Thermodynamic Functions From Coefficients for Rb(cr,ℓ) 190

Table IX.40.—Thermodynamic Functions From Coefficients for S(α,β,ℓ) 191

Table IX.41.—Thermodynamic Functions From Coefficients for Si(cr,ℓ) 192

Table IX.42.—Thermodynamic Functions From Coefficients for Sn(cr,ℓ) 193

Table IX.43.—Thermodynamic Functions From Coefficients for Sr(α,β,ℓ) 194

Table IX.44.—Thermodynamic Functions From Coefficients for Ta(cr,ℓ) 195

Table IX.45.—Thermodynamic Functions From Coefficients for Th(α,β,ℓ) 196

Table IX.46.—Thermodynamic Functions From Coefficients for Ti(α,β,ℓ) 197

Table IX.47.—Thermodynamic Functions From Coefficients for U(α,β,γ,ℓ) 198

Table IX.48.—Thermodynamic Functions From Coefficients for V(cr,ℓ) 199

Table IX.49.—Thermodynamic Functions From Coefficients for W(cr,ℓ) 200

Table IX.50.—Thermodynamic Functions From Coefficients for Xe 201

Table IX.51.—Thermodynamic Functions From Coefficients for Zn(cr,ℓ) 203

Table IX.52.—Thermodynamic Functions From Coefficients for Zr(α,β,ℓ) 204

Table X.—Least-Squares Fitting Differences With the 9-Constant Functional Form 205

Figure 1.—Comparison of Selected (Labeled Original) C_p° Values Given in Table III With Values Calculated From the 9-Constant Coefficients Given in Table VI 220

Summary

This report is a compilation of thermodynamic functions of 50 elements in their standard reference state. The functions are C_p^o, $\{H^o(T) - H^o(0)\}$, $S^o(T)$, and $-\{G^o(T) - H^o(0)\}$ for the elements Ag, Al, Ar, B, Ba, Be, Br_2, C, Ca, Cd, Cl_2, Co, Cr, Cs, Cu, F_2, Fe, Ge, H_2, He, Hg, I_2, K, Kr, Li, Mg, Mn, Mo, N_2, Na, Nb, Ne, Ni, O_2, P, Pb, Rb, S, Si, Sn, Sr, Ta, Th, Ti, U, V, W, Xe, Zn, and Zr. Deuterium D_2 and electron gas e^- are also included. The data are tabulated as functions of temperature as well as given in the form of least-squares coefficients for two functional forms for C_p^o with integration constants for enthalpy and entropy. One functional form for C_p^o is a fourth-order polynomial and the other has two additional terms, one with T^{-1} and the other with T^{-2}. The gases Ar, D_2, e^-, H_2, He, Kr, N_2, Ne, O_2, and Xe are tabulated for temperatures from 100 to 20 000 K. The remaining gases Cl_2 and F_2 are tabulated from 100 to 6000 K. The polynomial functional form for C_p^o for all these gases is split into the two temperature intervals of 200 to 1000 K and 1000 to 6000 K. The second functional form for C_p^o has an additional interval from 6000 to 20 000 K for the gases tabulated to 20 000 K. The fits are constrained so that the properties match at the common temperature endpoints. The temperature ranges for the condensed species vary with range of the data, phase changes, and shapes of the C_p^o curves.

Introduction

This report contains thermodynamic functions for 50 chemical elements plus electron gas and deuterium in their standard state. The functions presented are C_p^o, $\{H^o(T) - H^o(0)\}$, $S^o(T)$, and $-\{G^o(T) - H^o(0)\}$. This report is being published primarily to document part of the data currently being used in several NASA Lewis computer programs: PAC91 (ref. 1), CET89 (refs. 2 and 3), GCKP84 (ref. 4), CEA, and LSENS. CEA and LSENS are the newest Lewis codes for chemical equilibrium and kinetics, respectively, and are currently being documented. Selection of thermodynamic data for the elements is important inasmuch as these elements serve as a reference set from which all other species are formed. The reactions of formation and their corresponding equilibrium constants can then be specified unambiguously.

Several earlier references exist which contain thermodynamic data for the elements (e.g., refs. 5 and 6). Some of the data in these references are obsolete and in other cases the data do not extend to sufficiently high temperatures. Most of the data for this report were selected from nine recent references. Data for the monatomic gases and electron gas were calculated by means of the PAC91 computer program. Data for all species were processed by the PAC91 program to obtain several tables for each species. Tables are given for (1) the selected thermodynamic functions, (2) coefficients for two functional forms for C_p^o which were generated by PAC91 (usually the result of a least-squares fit), (3) thermodynamic functions generated from these coefficients, (4) enthalpies and Gibbs energies (EF data) used by PAC91 to calculate heats of formation and $\log_{10}K$ values for other compounds, and (5) maximum and average differences between the selected data and the fitted data. Plots are also given for C_p^o versus temperature for the selected data as well as for the fitted data calculated from one of the functional forms.

In general, the data are given without additional discussion inasmuch as the details of the selection, smoothing, averaging, interpolating, extrapolating, and other processing of the source data are covered adequately in the source references. In a few cases some additional discussion is given.

Symbols

a_i	polynomial coefficients used in eqs. (1) to (3)
b_1	integration constant defined by eq. (2)
b_2	integration constant defined by eq. (3)
C_p^o	heat capacity at constant pressure for standard state
c_2	second radiation constant
$G^o(T)$	either $\{G^o(T) - H^o(0)\} + H^o(0)$ or $\{G^o(T) - H^o(298.15)\} + H^o(298.15)$
$G^o(T) - H^o(0)$	Gibbs energy at temperature T relative to enthalpy at 0 K for standard state
$G^o(T) - H^o(298.15)$	Gibbs energy at temperature T relative to enthalpy at 298.15 K for standard state

$\Delta_f G^o(T)$	Gibbs energy of formation of a substance at temperature T from its reference elements in their standard state
$H^o(0)$	chemical energy at 0 K for standard state
$H^o(298.15)$	assigned enthalpy at 298.15 K for standard state (equal to $\Delta_f H^o(298.15)$)
$H^o(T)$	either $\{H^o(T) - H^o(0)\} + H^o(0)$ or $\{H^o(T) - H^o(298.15)\} + H^o(298.15)$
$H^o(T) - H^o(298.15)$	sensible enthalpy at temperature T relative to 298.15 K for standard state
$\Delta_f H^o(T)$	enthalpy of formation (heat of formation) of a substance at temperature T from its reference elements in their standard state
h	Planck's constant
K	equilibrium constant
k	Boltzmann constant
m_e	electron mass
N	principal quantum number for atomic species
q_i	temperature exponents in eq. (1)
R	universal gas constant
r	number of coefficients a_i in eq. (1)
S_o/R	Sackur-Tetrode constant
$S^o(T)$	entropy at temperature T for standard state
T	temperature, K
u	atomic mass unit used for the calculation of molar masses, u = 1/12 mass ^{12}C

Standard States, Reference States, and Fundamental Constants

The symbols and definitions follow the recommendations of reference 7. All data in this report are for elements in their standard state. For gases, this is ideal gas at standard pressure of 10^5 Pa (1 bar). For condensed species, the standard state is the pure crystalline or liquid substance at the same standard pressure. All thermodynamic properties are standard molar quantities.

The reference states of the elements are indicated in table I. Generally they are taken to be the thermodynamically stable state at 298.15 K. For those elements which are gases at 298.15 K and a pressure of 1 bar, the entire temperature range is taken to be gaseous. For species that are condensed at 298.15 K, the entire range is taken to be condensed with transitions between various phases such as between solid and liquid phases.

Most of the properties are given in the International System of Units (SI); that is, the temperatures are in Kelvin (K), energies in joules (J), and pressures in pascals (Pa). Sometimes the values are made dimensionless by dividing them either by the gas constant R or RT. The fundamental constants were taken from reference 8 and are as follows:

Quantity	Symbol	Value	Units
Molar gas constant	R	8.314510(70)	J/(mol-K)
Sackur-Tetrode constant:			
For p_o=100 000 Pa=1 bar	S_o/R	-1.151693(21)	
For p_o=101 325 Pa=1atm	S_o/R	-1.64856(21)	
Second radiation constant, hc/k	c_2	.01438769(12)	mK
Electron mass	m_e	0.000548579903(13)	u

These constants were used in PAC91 (ref. 1) in calculating the thermodynamic functions for the monatomic gases. The atomic weights were taken from reference 9. These weights are given in atomic mass units (u) based on ^{12}C = 12 u. Some of the thermodynamic functions taken from the literature were calculated with values of R and Sackur-Tetrode constants different from those selected for this report. In this event, corrections were made to these thermodynamic functions to adjust for the differences in these values. In the case of the Sackur-Tetrode constant, corrections were made to entropy and Gibbs energy values for calculations that were made using 1 atm for the standard state pressure rather than 1 bar.

Sources For Thermodynamic Functions

Except for the monatomic gases and electron gas, the thermodynamic functions C_p^o, $\{H^o(T) - H^o(0)\}$, and $S^o(T)$ were taken from nine recent compilations of data (refs. 10 to 18). The specific references for each element are given in table I where the elements are listed alphabetically by chemical symbol. PAC91 (ref. 1) was used to calculate the functions for monatomic gases.

Generally the data for the diatomic gases were taken from references 13 to 16, group IIA metals from reference 18, a few metals from references 15 and 16, the remaining metals from references 10 to 12, and graphite from reference 17. Some of the details are given in the notes at the end of table I.

The electronic levels given in references 19 to 21 were used by the PAC91 program to calculate thermodynamic functions for the noble gases He, Ne, Ar, Kr, and Xe to 20 000 K. For the first four of these gases, some of these levels were eliminated by the temperature cutoff method (TEMPER in ref.1) and some levels were added by the FILL option in reference 1. These four gases have a nearly constant C_p^o to at least 6000 K. For Xe, however, only those levels for principal quantum number 5 were used including levels supplied by the

FILL technique. The reason for treating Xe differently from the other noble gases pertains to results obtained from the least-squares fit. As discussed in the section, **Least-Squares Fit** only one temperature interval is used to fit data for gases from 6000 to 20 000 K. For the first four noble gases, errors resulting from the least-squares fit of data calculated with temperature cutoff method are acceptably small. However, this was not true for Xe. Several alternate methods of restricting the number of electronic levels were examined with the selection of $n = 5$ being the most satisfactory for acceptably small least-squares errors to 10 000 K. (See C_p^o plots in fig. 1 and least-squares fitting errors in table X.)

Empirical Equations for Fitting the Thermodynamic Functions

A convenient way to store the thermodynamic data for many individual species for use with computer programs is in the form of coefficients associated with equations that fit the data. The following dimensionless form was chosen for this report:

$$\frac{C_p^o}{R} = \sum_{i=1}^{r} a_i T^{q_i} \tag{1}$$

Two sets of q_i values were used in this report. One set is used by references 2 and 3 where $r = 5$ and the q_i values are 0, 1, 2, 3, and 4. The second set has two additional terms ($r = 7$), one with $q_i = -1$ and one with $q_i = -2$. (See the section **Least-Squares Fit** for an additional discussion of these equations.)

Enthalpy and entropy are related thermodynamically to C_p^o/R as follows:

$$\frac{H^o(T)}{RT} = \frac{b_1}{T} + \frac{\int C_p^o dT}{RT} \tag{2}$$

$$\frac{S^o(T)}{R} = b_2 + \left(\frac{C_p^o}{RT}\right) dT \tag{3}$$

where b_1 and b_2 are integration constants. These are two additional constants (or coefficients) to the five or seven coefficients in equation (1). The form used in references 2 and 3 will be referred to as the seven-coefficient set ($r = 5 + b_1 + b_2$) and the equations given in table V will be referred to as the nine-coefficient set.

Assigned Enthalpy Values

For some applications, such as discussed in reference 2, it is convenient to combine sensible enthalpy and energies of chemical and physical changes into one numerical value. An arbitrary base may be adopted for assigning absolute values to the enthalpy of various substances inasmuch as only differences in enthalpies are measurable. For this report, as well as references 1 to 4, the arbitrary base selected was a value of zero at 298.15 K for the reference elements. Thus, for the assigned reference elements:

$$\Delta_f H^o(298.15) = H^o(298.15) = 0 \tag{4}$$

And, in general, for all species:

$$H^o(298.15) = \Delta_f H^o(298.15) \tag{5}$$

$$H^o(T) = H^o(298.15) + \left\{H^o(T) - H^o(298.15)\right\} \tag{6}$$

Heats of Formation and Equilibrium Constants

Heats of formation and $\log_{10}K$ for a species are calculated as a function of temperature for the formation of the species from the elements in their assigned reference state. The following is an example of how these properties can be calculated for CO(g) at 1000 K:

$$\Delta_f H^o(1000) = H^o(1000)\mathrm{CO(g)} - H^o(1000)\mathrm{C(gr)} - \frac{1}{2}H^o(1000)\mathrm{O_2(g)} \tag{7}$$

$$\Delta_f G^o(1000) = G^o(1000)\mathrm{CO(g)} - G^o(1000)\mathrm{C(gr)} - \frac{1}{2}G^o(1000)\mathrm{O_2(g)} \tag{8}$$

By definition,

$$\log_{10} K = \frac{-\Delta_f G^o(T)}{2.3025851\ \mathrm{RT}} \tag{9}$$

Least-Squares Fit

For most of the elements in this report, the coefficients in equations (1) to (3) were obtained by means of a least-squares fit. PAC91 (ref. 1) was used to obtain the coefficients. For the gases the temperature intervals for both functional forms are fixed. These intervals are 200 to 1000 K and 1000 to 6000 K for the seven-constant form (i.e., the fourth-order polynomial for C_p^o used in the past). The nine-constant form given in table V uses these same intervals plus an additional interval from 6000 to 20 000 K for all gaseous elements except F_2 and Cl_2. For the condensed species, each phase has its own set of coefficients. The seven-constant form uses either one or two intervals for each phase with endpoint limits according to the transition points. Two intervals are used when the temperature range for a phase includes the 1000 K breakpoint. The nine-constant functional form has a flexible number of breakpoints in order to fit the selected data more accurately.

Generally the functions C_p^o/R, $H^o(T)/R$, and $S^o(T)/R$ were fit simultaneously. The fit was constrained to match the functions exactly at 298.15 K. Thus, the least-squares coefficients reproduce heats of formation at 298.15 K exactly. For temperature intervals that do not contain T=298.15 K, the fit was constrained to give the same functional values at the common temperature point for any contiguous intervals. When phase transitions occur, the fit was constrained so that the difference in Gibbs energy is zero between the phases.

For some elements and some temperature intervals, however, coefficients were not obtained by means of the PAC91 least-squares fit. These exceptions were as follows:

(1) The inert gases and electron gas—Ar, He, Kr, Ne, Xe, and e^-. C_p^o for electron gas is constant for the entire temperature range and is constant to some high temperature for the inerts. For Ar, He, and Ne data, the least-squares fit was done only for the interval above 6000 K. For Kr and Xe data, the fit was done for the two intervals above 1000 K.

(2) Some species where the C_p^o equations are given in the original reference—Ba, Be, Mg, Ca, Sr, Pb, S, and Sn. Except for Be(ℓ), for which C_p^o was taken to be a constant from reference 12, group IIA elements data (Be, Mg, Ca, Sr, and Ba) were generated from the equations in reference 18. Only the data for the alpha phases were refit because of the discontinuities at 298.15 K in reference 18. Equations for the liquid phases of Pb, S, and Sn were taken directly from references 15 and 16.

(3) For 29 elements in the liquid state. C_p^o is given as a constant in the references from which the data are taken.

The temperature intervals for the coefficients, whether they were obtained from a PAC91 least-squares fit or other sources, are given in table I. The format and coefficients for the nine-constant functional form are given in tables V and VI, respectively, and for the seven-constant functional form in tables VII and VIII, respectively. Table X gives information for the PAC91 fits only. It lists the maximum and average errors for the nine-constant fit. The two additional terms in the nine-constant functional form generally give approximately an order of magnitude improvement in the error of the fit. See the **Tables** section for definitions and a discussion of this information. Plots of C_p^o for the selected data as well as the data calculated using the the nine-constant functional form are given in figure 1.

Tables

There are nine tables of data. The order of the elements in each table is alphabetical by chemical symbol. Two of these tables are each subdivided into 52 subtables of thermodynamic functions for the 52 species (50 elements plus deuterium and electron gas) for a schedule of temperatures. These two tables are table III, which contains thermodynamic functions selected from the cited references, and table IX, which contains thermodynamic functions generated from fitting these functions. Data from table III will be referred to as *selected* tables or data and data from table IX will be referred to as *coefficients* tables or data.

Table I summarizes some information concerning each of the 52 species. This information consists of the name, chemical symbol, state, reference code, atomic or molecular weight, temperature ranges covered by the coefficients, references from which the thermodynamic data were taken, and letters indicating additional comments at the end of the table. Most of the data given in the selected tables start at temperatures lower than the low end of the temperature range of the fitted data. Since the elements constitute the reference set of species from which all other species are formed, their heats of formation are all zero and are not tabulated. The reference code is a six-character code associated with each set of coefficients to indicate the major source of the data. The numbers indicate the date of the reference and the letters indicate the source as follows: CODA (CODATA, refs. 11 and 12); L (NASA Lewis Research Center, ref. 1); J (JANAF, ref. 10); TPIS (Thermodynamic Properties of Individual Substances, refs. 13 to 16); SRD (Standard Reference Data, ref. 18); and X (TeXas, ref.17). For J and X, the date is associated with the individual species as given in the selected reference: for example, J 6/83 indicates JANAF data dated June 1983.

Table II tabulates the molecular weights and summarizes values of the thermodynamic functions at T = 298.15 K. These functions include $\{H^o(298.15) - H^o(0)\}$, C_p^o, and $S^o(298.15)$. Most of the least-squares fitting was constrained to fit these values at 298.15 K. In this event, these values are the same for both the selected and coefficients data.

Table III contains the selected data for the 52 species. Generally the temperature schedules are every 100 K with some inserted temperatures for 298.15 K, transition points,

and, in some cases, lower temperatures. The thermodynamic functions are in SI units and include C_p^o, $\{H^o(T) - H^o(0)\}$, $S^o(T)$, $-\{G^o(T) - H^o(0)\}/T$, $H^o(T)$, and $-G^o(T)/T$. Heats of formation and $\log_{10}K$ values were not included in the table since these values are zero for reference elements by definition. Plots of the C_p^o data are given in figure 1.

Table IV gives the enthalpy and Gibbs energy data in dimensionless form and in the format required by the PAC91 computer program described in reference 1. These data are referred to as EFdata in that reference and are used to calculate heats of formation and $\log_{10}K$ of species formed from the elements. In table IV, data for each reference element are preceeded by a header record containing some relevant information about that element. For example, the header for the first element in table IV (Ag) contains the following information:

Code	Meaning
EFDA	EFdata record
AG1S	element name, $Ag_1(s)$
CODA89	code for data reference
H0/R	$H^o(0)/R$
−690.9607	value for above
MP	melting point
1235.0800	value for the melting point, K
NT	number of temperatures for this element
63	value for above

In each data record following the header card, the six values given are for a temperature, followed by its value of $H^o(T)/RT$ and $-G^o(T)/RT$, and the next temperature, followed by its value of $H^o(T)/RT$ and $-G^o(T)/RT$.

Table V gives the format for the coefficients in the nine-constant functional form (eqs. (1) to (3) with $r = 7$).

Table VI lists the set of coefficients having the format of table V. In this report gaseous species have a temperature interval break point at 1000 K. For gaseous species with data given to 20 000 K, there is an additional break point at 6000 K. For condensed species, in addition to break points at phase transitions, additional interval break points have been selected to reduce differences between the fitted and *selected* data. Plots of C_p^o values from this table are given in figure 1.

TableVII gives the format for the coefficients in the seven-constant functional form (eqs.(1) to (3) with $r = 5$).

Table VIII lists the set of coefficients having the format of table VII. The seven constants include five constants for a fourth-order polynomial for C_p^o and two integration constants. This is the form used for many years in several NASA Lewis computer programs (refs. 2 to 4). These data are in the "old" format required by these programs and described in reference 2. When the temperature range embraces 1000 K, there is always a break point at 1000 K and there are always two intervals for this format. Most older data were constrained to match the *selected* data at the 1000 K break point. However, for this report the data are constrained to fit the *selected* data at 298.15 K and to match at the break points.

Table IX is similar to table III in that it contains tables of thermodynamic functions for the 52 species. The data for table IX, however, were calculated from the coefficients listed in table VI, the nine-constant functional form given in table V. The temperature schedule is always from 200 K in 100 K intervals to the maximum temperature of the equations. There are temperatures inserted for 0, 298.15, and transition points. The thermodynamic functions are in SI units and include C_p^o, $\{H^o(T) - H^o(0)\}$, $S^o(T)$, $-\{G^o(T) - H^o(0)\}/T$, $H^o(T)$, and $-G^o(T)/T$.

Table X summarizes the maximum, average, and least-squares errors between the fitted and the selected data for each temperature interval. Only data where the coefficients were obtained from a PAC91 least-squares fit are listed. There are two sets of errors: (1) the *selected* value minus the calculated value and (2) a relative error, which is this value divided by the *selected* value. The least-squares error is the root mean square of errors. Errors are labeled MAX ERR, AVER ERR, and LST SQ ERR. The relative errors are labeled MAX REL ERR, AVER REL ERR, and REL LST SQ ERR. Both sets are given for C_p^o/R, $\{H^o(T) - H^o(0)\}/RT$, $S^o(T)/R$, and $-\{G^o(T) - H^o(0)\}/RT$. See the section **Least-Squares Fit** for a discussion of the constraints. The maximum relative error for C_p^o/R is labeled MAX REL ERR CP/R. Note that most errors are less than 1 percent. The exceptions are the alpha phase of iron Fe(α) above the lambda transition and the noble gases Ar, Kr, and Xe above 10 000 K.

Concluding Remarks

Tables of thermodynamic functions are presented for 50 elements plus electron gas and deuterium in their standard reference state. Selection of these data for the elements is important inasmuch as the elements serve as a reference set from which all other species are formed. The tables are given for (1) the selected thermodynamic funcitons, (2) coefficients for two functional forms for C_p^o and (3) thermodynamic functions generated from coefficients for one of the functional forms. Plots are also given for C_p^o versus temperature for (1) and (3). This report should prove useful as a compilation of thermodynamic data of the elements as well as providing documentation for some of the data currently used in a number of NASA Lewis computer programs.

References

1. McBride, B.J.; and Gordon, S.: Computer Program for Calculating and Fitting Thermodynamic Functions. NASA RP–1271, 1992.
2. Gordon, S.; and McBride, B.J.: Computer Program for Calculation of Complex Chemical Equilibrium Compositions, Rocket Performance, Incident and Reflected Shocks, and Chapman-Jouguet Detonations. NASA SP–273, 1976.
3. Gordon, S.; and McBride, B.J.: Finite Area Combustor Theoretical Rocket Performance. NASA TM–100785, 1988.
4. Bittker, D.A.; and Scullin, V.J.: GCKP84—General Chemical Kinetics Code for Gas-Phase Flow and Batch Processes Including Heat Transfer Effects. NASA TP–2320, 1984.
5. Stull, D.R.; and Sinke, G.C.: Thermodynamic Properties of the Elements. American Chemical Society, Washington, DC. 1956.
6. Hultgren, R., et al.: Selected Values of Thermodynamic Properties of Metals and Alloys. John Wiley & Sons, Inc., New York, 1963.
7. Cox, J.D.: Notation for States and Processes, Significance of the Word *Standard* in Chemical Thermodynamics, and Remarks on Commonly Tabulated Forms of Thermodynamic Functions. Pure Appl. Chem., vol. 54, no. 6, 1982, pp. 1239–1250.
8. Cohen, E.R.; and Taylor, B.N.: The 1986 CODATA Recommended Values of the Fundamental Physical Constants. J. Res. NBS, vol. 92, no. 2, Mar-Apr. 1987, pp. 85–95.
9. IUPAC Commission on Atomic Weights and Isotopic Abundances: Atomic Weights of the Elements 1985. Pure Appl. Chem., vol. 58, no. 12, 1986, pp. 1677–1682.
10. Chase, M.W. Jr., et al.: JANAF Thermochemical Tables. Third Ed., Pts. 1. & 2. American Institute of Physics, New York, 1986.
11. Garvin, D.; Parker, V.B.; and White, H.J., Jr.: CODATA Thermodynamic Tables. Hemisphere Publishing Corp., New York, 1987.
12. Cox, J.D.; Wagman, D.D.; and Medvedev, V.A.: CODATA Key Values for Thermodynamics. Hemisphere Publishing Corp., 1989.
13. Gurvich, L.V., et al.: Thermodynamic Properties of Individual Substances. Vol. 1, Pts. 1 & 2. Nauka, Moscow, USSR, 1978.
14. Gurvich, L.V., et al.: Thermodynamic Properties of Individual Substances. Vol. IV, Pts. 1 & 2. Nauka, Moscow, USSR, 1982.
15. Gurvich, L.V.; Veyts, I.V.; and Alcock, C.B.: Thermodynamic Properties of Individual Substances. Fourth Ed., Vol. 1, Pts. 1 & 2. Hemisphere Publishing Corp., New York, 1989.
16. Gurvich, L.V.; Veyts, I.V.; and Alcock, C.B.: Thermodynamic Properties of Individual Substances. Fourth Ed., Vol. 2, Pts. 1 & 2. Hemisphere Publishing Corp., New York, 1991.
17. TRC Thermodynamic Tables—Hydrocarbons. Thermodynamics Research Center, The Texas A&M University System: College Station, Texas, 1983 issue.
18. Alcock, C.B., et al.: Thermodynamic Properties of the Group IIA Elements. To be published in J. Phys. Chem. Ref. Data, 1992.
19. Moore, C.E.: Atomic Energy Levels. Vol. I. Department of Commerce, National Bureau of Standards, G.P.O., 1971.
20. Moore, C.E.: Atomic Energy Levels. Vol. II. Department of Commerce, National Bureau of Standards, G.P.O., 1971.
21. Moore, C.E.: Atomic Energy Levels. Vol. III. Department of Commerce, National Bureau of Standards, G.P.O., 1971.

TABLE I. - SYMBOLS, PHASES, REFERENCE CODES, TEMPERATURE RANGES, REFERENCES, AND NOTES

Table	Element	Symbol	Phase	Reference code[d]	Molecular weight	Temperature range, K (9-Cons. Coeffs.)		Reference	Notes
1	Silver	Ag(cr)	Cubic Crystal	CODA89	107.8682	200.000	1235.080	12	a
		Ag(ℓ)	Liquid	CODA89		1235.080	6000.000	12	a,b
2	Aluminum	Al(cr)	Cubic Crystal	CODA89	26.981539	200.000	933.610	12	
		Al(ℓ)	Liquid	CODA89		933.610	6000.000	12	b
3	Argon	Ar	Gas	L 6/88	39.948	200.000	1000.000	19	b,c
						1000.000	6000.000	19	b,c
						6000.000	20000.000	19	c
4	Boron	B(β)	Beta Crystal	J 6/83	10.811	200.000	600.000	10	e
						600.000	2350.000	10	e
		B(ℓ)	liquid	J 6/83		2350.000	6000.000	10	b
5	Barium	Ba(cr)	Alpha Crystal	SRD 92	137.327	80.000	298.150	18	s,f,m
						298.150	1000.000	18	s,m
		Ba(ℓ)	Liquid	SRD 92		1000.000	6000.000	18	b
6	Beryllium	Be(α)	Alpha Crystal	SRD 92	9.012182	100.000	298.150	18	s,f,m
						298.150	1543.000	18	s,m
		Be(β)	Beta Crystal	SRD 92		1543.000	1563.000	18	s,m
		Be(ℓ)	Liquid	SRD 92		1563.000	6000.000	12	b
7	Bromine	Br_2 (cr)	Rhombic Crystal	TPIS89	159.808	200.000	265.900	15	a,f
		Br_2(ℓ)	Liquid	TPIS89		265.900	332.503	15	a,u
						332.503	6000.000	10	b
8	Carbon	C(gr)	Graphite	X 4/83	12.011	200.000	600.000	17	f
						600.000	2000.000	17	g
						2000.000	5000.000	17	g
9	Calcium	Ca(α)	Alpha Crystal	SRD 92	40.078	200.000	298.150	18	s,f
						298.15	716.000	18	s
		Ca(β)	Beta Crystal	SRD 92		716.000	1115.000	18	s,m
		Ca(ℓ)	Liquid	SRD 92		1115.000	6000.000	18	b
10	Cadmium	Cd(cr)	Hexagonal Crystal	CODA89	112.411	100.000	594.258	12	a,i
		Cd(ℓ)	Liquid	CODA89		594.258	6000.000	12	b
11	Chlorine	Cl_2	Gas	TPIS89	70.9054	200.000	1000.000	15	p
						1000.000	6000.000	15	p
12	Cobalt	Co(α)	Alpha Crystal	J 9/67	58.9332	200.000	500.000	10	e
						500.000	700.100	10	
		Co(β)	Beta ≤ Lambda	J 9/67		700.100	800.000	10	
						800.000	1394.000	10	
		Co(β)	Beta ≥ Lambda	J 9/67		1394.000	1400.000	10	a
						1400.000	1768.000	10	
		Co(ℓ)	Liquid	J 9/67		1768.000	6000.000	10	b,h

TABLE I. - Continued.

Table	Element	Symbol	Phase	Reference code[d]	Molecular weight	Temperature range, K (9-Cons. Coeffs.)		Reference	Notes
13	Chromium	Cr(cr)	Crystal ≤ Lambda	J 6/73	51.9961	200.000	311.500	10	e
		Cr(cr)	Crystal ≥ Lambda	J 6/73		311.500	1000.000	10	e
						1000.000	2130.000	10	a
		Cr (ℓ)	Liquid	J 6/73		2130.000	6000.000	10	a,b
14	Cesium	Cs(cr)	Cubic Crystal	CODA89	132.90543	100.000	301.590	12	i
		Cs (ℓ)	Liquid	CODA89		301.590	1000.000	12	
						1000.000	2000.000	12	
15	Copper	Cu(cr)	Cubic Crystal	CODA89	63.546	200.000	1358.000	12	a
		Cu (ℓ)	Liquid	CODA89		1358.000	6000.000	12	a,b
16	Deuterium	D_2	Gas	TPIS89	4.02820	200.000	1000.000	15	p
						1000.000	6000.000	15	p
						6000.000	20000.000	15	p
17	Electron	e^-	Gas	L 6/88	0.0005486	200.000	1000.000	8	j,b
						1000.000	6000.000	8	j,b
						6000.000	20000.000	8	j,b
18	Fluorine	F_2	Gas	TPIS89	37.9968064	200.000	1000.000	15	p
						1000.000	6000.000	15	p
19	Iron	Fe (α)	Alpha ≤ Lambda	J 3/78	55.847	200.000	500.000	10	e
						500.000	800.000	10	e
						800.000	1042.000	10	g
		Fe (α)	Alpha ≥ Lambda	J 3/78		1042.000	1184.000	10	
		Fe (γ)	Gamma Crystal	J 3/78		1184.000	1665.000	10	
		Fe (δ)	Delta Crystal	J 3/78		1665.000	1809.000	10	a
		Fe (ℓ)	Liquid	J 3/78		1809.000	6000.000	10	a,b
20	Germanium	Ge(cr)	Cubic Crystal	TPIS91	72.61	200.000	400.000	16	
						400.000	1211.400	16	a
		Ge (ℓ)	Liquid	TPIS91		1211.400	6000.000	16	a,b
21	Hydrogen	H_2	Gas	TPIS78	2.01588	200.000	1000.000	13	f,k,p
						1000.000	6000.000	13	p
						6000.000	20000.000	13	l,p
22	Helium	He	Gas	L10/90	4.002602	200.000	1000.000	19	b,c
						1000.000	6000.000	19	b,c
						6000.000	20000.000	19	c
23	Mercury	Hg(cr)	Tetragonal Cryst.	J12/61	200.59	100.000	234.290	10	e,i
		Hg (ℓ)	Liquid	J12/61		234.290	600.000	10	
						600.000	2000.000	10	
24	Iodine	I_2 (cr)	Rhombic Crystal	TPIS89	253.80894	200.000	386.750	15	f
		I_2 (ℓ)	Liquid	TPIS89		386.750	6000.000	15	b
25	Potassium	K(cr)	Cubic Crystal	CODA89	39.0983	200.000	336.860	12	a
		K(ℓ)	Liquid	CODA89		336.860	2200.000	12	a
26	Krypton	Kr	Gas	L10/90	83.80	200.000	1000.000	20	b,c
						1000.000	6000.000	20	b,c
						6000.000	20000.000	20	c

TABLE I. - Continued.

Table	Element	Symbol	Phase	Reference code[d]	Molecular weight	Temperature range, K (9-Cons. Coeffs.)		Reference	Notes
27	Lithium	Li(cr)	Cubic Crystal	TPIS82	6.941	200.000	298.150	14	g
						298.150	453.690	14	
		Li (ℓ)	Liquid	TPIS82		453.690	6000.000	14	
28	Magnesium	Mg(cr)	Hexagonal Crystal	SRD 92	24.3050	100.000	298.150	18	s,f,m
						298.150	923.000	18	s,m
		Mg (ℓ)	Liquid	SRD 92		923.000	6000.000	18	b
29	Manganese	Mn (α)	Alpha Crystal	J 9/67	54.93805	200.000	980.000	10	a,e,f
		Mn (β)	Beta Crystal	J 9/67		980.000	1361.000	10	a
		Mn (γ)	Gamma Crystal	J 9/67		1361.000	1412.000	10	
		Mn (δ)	Delta Crystal	J 9/67		1412.000	1519.000	10	
		Mn (ℓ)	Liquid	J 9/67		1519.000	6000.000	10	b
30	Molybdenum	Mo(cr)	Crystal	J 3/78	95.94	200.000	1000.000	10	e
						1000.000	2200.000	10	
						2200.000	2896.000	10	a,o
		Mo(ℓ)	Liquid	J 3/78		2896.000	6000.000	10	a,b,o
31	Nitrogen	N_2	Gas	TPIS78	28.01348	200.000	1000.000	13	n,p
						1000.000	6000.000	13	n,p
						6000.000	20000.000	13	n,p
32	Sodium	Na(cr)	Cubic Crystal	CODA89	22.989768	200.000	371.010	12	a
		Na (ℓ)	Liquid	CODA89		371.010	2300.000	12	a
33	Niobium	Nb(cr)	Crystal	J12/73	92.90638	200.000	1000.000	10	
						1000.000	2000.000	10	
						2000.000	2750.000	10	a
		Nb (ℓ)	Liquid	J12/73		2750.000	6000.000	10	a,b
34	Neon	Ne	Gas	L10/90	20.1797	200.000	1000.000	19	b,c
						1000.000	6000.000	19	b,c
						6000.000	20000.000	19	c
35	Nickel	Ni(cr)	Crystal ≤ Lambda	J12/76	58.69	200.000	400.000	10	e
						400.000	631.000	10	
		Ni(cr)	Crystal ≥ Lambda	J12/76		631.000	1200.000	10	
						1200.000	1728.000	10	a,o
		Ni (ℓ)	Liquid	J12/76		1728.000	6000.000	10	b,h,o
36	Oxygen	O_2	Gas	TPIS89	31.9988	200.000	1000.000	15	g,p
						1000.000	6000.000	15	p
						6000.000	20000.000	15	p
37	Phosphorus	P(cr)	Crystal(White)	TPIS89	30.973762	195.400	317.300	15	a,q
		P (ℓ)	Liquid	TPIS89		317.300	6000.000	15	a,b
38	Lead	Pb(cr)	Cubic Crystal	TPIS91	207.2	200.000	600.650	16	
		Pb (ℓ)	Liquid	TPIS91		600.650	3600.000	16	m
39	Rubidium	Rb(cr)	Cubic Crystal	CODA89	85.4678	100.000	312.470	12	r
		Rb (ℓ)	Liquid	CODA89		312.470	1000.000	12	
						1000.000	2100.000	12	

TABLE I. - Continued.

Table	Element	Symbol	Phase	Reference code[d]	Molecular weight	Temperature range, K (9-Cons. Coeffs.)		Reference	Notes
40	Sulfur	S(α)	Alpha Crystal	TPIS89	32.066	200.000	368.300	15	s
		S(β)	Beta Crystal	TPIS89		368.300	388.360	15	s
		S(ℓ)	Liquid	TPIS89		388.360	428.150	15	s,m
						428.150	432.250	15	s,m
						432.250	453.150	15	s,m
						453.150	717.000	15	s,m
						717.000	6000.000	15	b
41	Silicon	Si(cr)	Cubic Crystal	TPIS91	28.0855	200.000	298.150	16	g
						298.150	1690.000	16	
		Si(ℓ)	Liquid	TPIS91		1690.000	6000.000	16	b
42	Tin	Sn(cr)	Tetragonal Cryst.	TPIS91	118.710	200.000	505.118	16	a,s
		Sn(ℓ)	Liquid	TPIS91		505.118	4700.000	16	a,m,s
43	Strontium	Sr(α)	Alpha Crystal	SRD 92	87.62	100.000	298.150	18	s
						298.150	820.000	18	s
		Sr(β)	Beta Crystal	SRD 92		820.000	1041.000	18	s,m
		Sr(ℓ)	Liquid	SRD 92		1041.000	6000.000	18	b
44	Tantalum	Ta(cr)	Crystal	J12/72	180.9479	200.000	1000.000	10	a,e
						1000.000	2000.000	10	
						2000.000	3258.000	10	a
		Ta(ℓ)	Liquid	J12/72		3258.000	6000.000	10	a,b
45	Thorium	Th(α)	Alpha Crystal	CODA89	232.0381	200.000	1650.000	12	
		Th(β)	Beta Crystal	CODA89		1650.000	2023.000	12	a,h
		Th(ℓ)	Liquid	CODA89		2023.000	6000.000	12	a,b,h
46	Titanium	Ti(α)	Alpha Crystal	CODA89	47.88	200.000	900.000	12	
						900.000	1156.000	12	
		Ti(β)	Beta Crystal	CODA89		1156.000	1944.000	12	a
		Ti(ℓ)	Liquid	CODA89		1944.000	6000.000	12	a,b
47	Uranium	U(α)	Alpha Crystal	CODA89	238.0289	200.000	942.000	12	a
		U(β)	Beta Crystal	CODA89		942.000	1049.000	12	a,b
		U(γ)	Gamma Crystal	CODA89		1049.000	1408.000	12	b,h
		U(ℓ)	Liquid	CODA89		1408.000	4000.000	12	
48	Vanadium	V(cr)	Crystal	J 6/73	50.9415	200.000	600.000	10	
						600.000	1400.000	10	
						1400.000	2190.000	10	a,o
		V(ℓ)	Liquid	J 6/73		2190.000	6000.000	10	a,b,o
49	Tungsten	W(cr)	Crystal	J 6/66	183.85	200.000	1000.000	10	
						1000.000	2600.000	10	
						2600.000	3200.000	10	
						3200.000	3680.000	10	a
		W(ℓ)	Liquid	J 6/66		3680.000	6000.000	10	a,b
50	Xenon	Xe	Gas	L12/91	131.29	200.000	1000.000	21	t,b
						1000.000	6000.000	21	t
						6000.000	20000.000	21	t

TABLE I. - Concluded.

Table	Element	Symbol	Phase	Reference code[d]	Molecular weight	Temperature range, K (9-Cons. Coeffs.)		Reference	Notes
51	Zinc	Zn(cr)	Hexagonal Crystal	CODA89	65.39	200.000	692.730	12	a
		Zn(ℓ)	Liquid	CODA89		692.730	6000.000	12	a,b
52	Zirconium	Zr(α)	Alpha Crystal	J 6/79	91.224	200.000	1135.000	10	
		Zr(β)	Beta Crystal	J 6/79		1135.000	2125.000	10	a
		Zr(ℓ)	Liquid	J 6/79		2125.000	6000.000	10	a,b

[a]Values of the functions at temperatures where there are phase transitions or enthalpies of transition were adjusted so functions at the transition temperature and higher round to match the original reference.

[b]C_p^o is constant in this interval.

[c]PAC91 computer program (ref. 1) was used to calculate the functions using method TEMPER to cut off higher electronic levels and the FILL option to fill in predicted but as yet unobserved electronic levels.

[d]Six-character code is associated with each set of coefficients to indicate the major source of the data. Letters indicate the reference while the numbers indicate the date of the reference. The letter codes are as follows: CODA (CODATA, refs. 11 and 12); L (Lewis, ref. 1), J (JANAF, ref. 10); SRD (Standard Reference Data, ref. 18); TPIS (Thermodynamic Properties of Individual Substances, refs. 13 to 16); and X (TeXas, ref. 17). Thus, CODA89 refers to CODATA, 1989 (ref. 12). For J and X, the date is associated with the individual species as given with the data. For L the date refers to the date of the calculation.

[e]Some data at intermediate temperatures were obtained from Malcolm Chase by private communication.

[f]For this species thermodynamic functions in the selected data of table III as well as the EF data in table IV are given to temperatures lower than the fitted temperature range.

[g]Selected data are interpolated to obtain data at intermediate temperatures in order to obtain an improved least-squares fit.

[h]An attempt was made to adjust some of the values so the data would round to values that match the original reference. However a few values are still off in the last figure.

[i]Least-squares fit was started at 100 K rather than 200 K because the fit was just about as good.

[j]PAC91 computer program (ref. 1) was used to calculate the functions assuming ground state only and a statistical weight of 2. The electron mass was taken to be 0.00054858 from reference 8.

[k]Data for T = 50 K and T = 150 K were taken from reference 17, June 20, 1986. Data for 250 and 350 K were taken from reference 10, March 1977.

[l]C_p^o values are the same in a newer reference (ref. 15) but the enthalpies and entropies are more consistent with the C_p^o values at high temperatures in the older reference.

[m]Equations for C_p^o were taken from the reference.

[n]Values at 150 K was obtained by interpolation and adjustment. Values of 250 and 350 K were taken from reference 10. The $H^o(T)-H^o(0)$ values at very high temperatures were adjusted to be more consistent with C_p^o and $S^o(T)$ values.

[o]Heat of transition used differs slightly from the one given in the reference probably because of rounding when converting from calories to joules.

[p]Reference data were calculated with a value for gas constant R different from the value R = 8.31451 J/mol K used in this report. Adjustment to R = 8.31451 results in some of the tabulated data differing in the last figure from the reference data.

[q]C_p^o value at 300 K was incorrect in the original reference. It was corrected for this report.

[r]C_p^o value at 250 K was taken from reference 10. $H^o(250)-H^o(0)$ and $S^o(250)$ were obtained by numerical integration.

[s]Functions calculated from equations given in the original reference with possibly some adjustments in the integration constants, either for consistency between phases or to match property values given.

[t]PAC91 computer program (ref. 1) was used to calculate the thermodynamic functions using the electronic levels given for the principal quantum numbers 4 and 5 with FILL to include missing electronic levels for principal quantum number 5.

[u]Slight inconsistency exists in the data at the melting point of Br_2 in the table given in reference 15. This is reflected in tables III and IX in this report.

TABLE II. - THERMODYNAMIC FUNCTIONS AT 298.15 K

Table	Element	Symbol	Phase	Atom number	$\{H^o(298.15)-H^o(0)\}$ J/mol	C_p^o J/mol-K	$S^o(298.15)$ J/mol/K
1	Silver	Ag(cr)	Cubic Crystal	47	5745.000	25.350	42.550
2	Aluminum	Al(cr)	Cubic Crystal	13	4540.000	24.200	28.300
3	Argon	Ar	Gas	18	6197.428	20.786	154.847
4	Boron	B(β)	Beta Crystal	5	1214.000	11.315	5.834
5	Barium	Ba(cr)	Crystal	56	6906.992	28.110	62.352
6	Beryllium	Be(α)	Alpha Crystal	4	1942.068	16.443	9.503
7	Bromine	Br_2 (ℓ)	Liquid	35	24520.000	75.680	152.210
8	Carbon	C(gr)	Graphite	6	1053.500	8.528	5.734
9	Calcium	Ca(α)	Alpha Crystal	20	5782.945	25.750	42.536
10	Cadmium	Cd(cr)	Hexagonal Crystal	48	6247.000	26.020	51.800
11	Chlorine	Cl_2	Gas	17	9181.110	33.949	223.082
12	Cobalt	Co(α)	Alpha Crystal	27	4771.000	24.802	30.067
13	Chromium	Cr(cr)	Crystal	24	4057.000	23.434	23.618
14	Cesium	Cs(cr)	Cubic Crystal	55	7711.000	32.210	85.230
15	Copper	Cu(cr)	Cubic Crystal	29	5004.000	24.440	33.150
16	Deuterium	D_2	Gas		8569.103	29.195	144.960
17	Electron	e^-	Gas		6197.428	20.786	20.979
18	Fluorine	F_2	Gas	9	8825.106	31.304	202.792
19	Iron	Fe(α)	Alpha Crystal	26	4507.000	25.094	27.321
20	Germanium	Ge(cr)	Cubic Crystal	32	4636.360	23.222	31.090
21	Hydrogen	H_2	Gas	1	8468.102	28.836	130.681
22	Helium	He	Gas	2	6197.428	20.786	126.154
23	Mercury	Hg(ℓ)	Liquid	80	9343.000	27.978	76.028
24	Iodine	I_2 (cr)	Rhombic Crystal	53	13196.000	54.440	116.139
25	Potassium	K(cr)	Cubic Crystal	19	7088.000	29.600	64.680

TABLE II. - Concluded.

Table	Element	Symbol	Phase	Atom number	$\{H^o(298.15)-H^o(0)\}$ J/mol	C_p^o J/mol-K	$S^o(298.15)$ J/mol/K
26	Krypton	Kr	Gas	36	6197.428	20.786	164.086
27	Lithium	Li(cr)	Cubic Crystal	3	4632.000	24.860	29.120
28	Magnesium	Mg(cr)	Hexagonal Crystal	12	4979.161	24.775	32.535
29	Manganese	Mn(α)	Alpha Crystal	25	4994.000	26.299	32.010
30	Molybdenum	Mo(cr)	Crystal	42	4585.000	23.933	28.605
31	Nitrogen	N_2	Gas	7	8670.104	29.124	191.610
32	Sodium	Na(cr)	Cubic Crystal	11	6460.000	28.230	51.300
33	Niobium	Nb(cr)	Crystal	41	5241.000	24.694	36.464
34	Neon	Ne	Gas	10	6197.428	20.786	146.330
35	Nickel	Ni(cr)	Crystal	28	4786.000	25.987	29.870
36	Oxygen	O_2	Gas	8	8680.104	29.378	205.149
37	Phosphorus	P(cr)	Crystal(White)	15	5360.000	23.824	41.090
38	Lead	Pb(cr)	Cubic Crystal	82	6870.000	26.650	64.800
39	Rubidium	Rb(cr)	Cubic Crystal	37	7489.000	31.060	76.780
40	Sulfur	S(α)	Alpha Crystal	16	4412.000	22.690	32.070
41	Silicon	Si(cr)	Cubic Crystal	14	3217.471	19.789	18.810
42	Tin	Sn(cr)	Tetragonal Crystal	50	6323.000	27.112	51.180
43	Strontium	Sr(α)	Alpha Crystal	38	6558.289	26.830	54.999
44	Tantalum	Ta(cr)	Crystal	73	5681.000	25.295	41.471
45	Thorium	Th(α)	Alpha Crystal	90	6350.000	26.230	51.830
46	Titanium	Ti(α)	Alpha Crystal	22	4824.000	25.060	30.720
47	Uranium	U(α)	Alpha Crystal	92	6364.000	27.665	50.200
48	Vanadium	V(cr)	Crystal	23	4640.000	24.896	28.936
49	Tungsten	W(cr)	Crystal	74	4973.000	24.295	32.660
50	Xenon	Xe	Gas	54	6197.428	20.786	169.686
51	Zinc	Zn(cr)	Hexagonal Crystal	30	5657.000	25.390	41.630
52	Zirconium	Zr(α)	Alpha Crystal	40	5497.000	25.202	38.869

TABLE III.1. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ag(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.745	INFINITE	0
	100	20.100	1.042	17.120	6.700	-4.703	64.150	100
	200	24.160	3.308	32.660	16.120	-2.437	44.845	200
	298.15	25.350	5.745	42.550	23.281	0.000	42.550	298.15
	300	25.356	5.792	42.707	23.400	0.047	42.550	300
	400	25.791	8.347	50.056	29.188	2.602	43.551	400
	500	26.365	10.955	55.871	33.961	5.210	45.451	500
	600	26.992	13.622	60.733	38.030	7.877	47.605	600
	700	27.645	16.354	64.942	41.579	10.609	49.786	700
	800	28.312	19.152	68.677	44.737	13.407	51.918	800
	900	28.987	22.017	72.051	47.588	16.272	53.971	900
	1000	29.667	24.949	75.140	50.191	19.204	55.936	1000
	1100	30.350	27.950	78.000	52.591	22.205	57.814	1100
	1200	31.035	31.019	80.670	54.821	25.274	59.608	1200
cr	1235.08	31.276	32.112	81.568	55.567	26.367	60.219	1235.08
ℓ	1235.08	33.400	43.112	90.474	55.567	37.367	60.219	1235.08
	1300	33.400	45.281	92.185	57.354	39.536	61.773	1300
	1400	33.400	48.621	94.660	59.931	42.876	64.035	1400
	1500	33.400	51.961	96.964	62.324	46.216	66.154	1500
	1600	33.400	55.301	99.120	64.557	49.556	68.148	1600
	1700	33.400	58.641	101.145	66.650	52.896	70.030	1700
	1800	33.400	61.981	103.054	68.620	56.236	71.812	1800
	1900	33.400	65.321	104.860	70.481	59.576	73.504	1900
	2000	33.400	68.661	106.573	72.243	62.916	75.115	2000
	2100	33.400	72.001	108.203	73.917	66.256	76.652	2100
	2200	33.400	75.341	109.756	75.511	69.596	78.122	2200
	2300	33.400	78.681	111.241	77.032	72.936	79.530	2300
	2400	33.400	82.021	112.663	78.487	76.276	80.881	2400
	2500	33.400	85.361	114.026	79.882	79.616	82.180	2500
	2600	33.400	88.701	115.336	81.220	82.956	83.430	2600
	2700	33.400	92.041	116.597	82.507	86.296	84.635	2700
	2800	33.400	95.381	117.811	83.747	89.636	85.798	2800
	2900	33.400	98.721	118.983	84.942	92.976	86.923	2900
	3000	33.400	102.061	120.116	86.095	96.316	88.010	3000
	3100	33.400	105.401	121.211	87.211	99.656	89.064	3100
	3200	33.400	108.741	122.271	88.290	102.996	90.085	3200
	3300	33.400	112.081	123.299	89.335	106.336	91.076	3300
	3400	33.400	115.421	124.296	90.349	109.676	92.038	3400
	3500	33.400	118.761	125.264	91.333	113.016	92.974	3500
	3600	33.400	122.101	126.205	92.288	116.356	93.884	3600
	3700	33.400	125.441	127.120	93.217	119.696	94.770	3700
	3800	33.400	128.781	128.011	94.121	123.036	95.633	3800
	3900	33.400	132.121	128.879	95.001	126.376	96.475	3900
	4000	33.400	135.461	129.724	95.859	129.716	97.295	4000
	4100	33.400	138.801	130.549	96.695	133.056	98.096	4100
	4200	33.400	142.141	131.354	97.511	136.396	98.879	4200
	4300	33.400	145.481	132.140	98.307	139.736	99.643	4300
	4400	33.400	148.821	132.908	99.085	143.076	100.390	4400
	4500	33.400	152.161	133.658	99.845	146.416	101.121	4500
	4600	33.400	155.501	134.392	100.588	149.756	101.837	4600
	4700	33.400	158.841	135.111	101.315	153.096	102.537	4700
	4800	33.400	162.181	135.814	102.026	156.436	103.223	4800
	4900	33.400	165.521	136.502	102.723	159.776	103.895	4900
	5000	33.400	168.861	137.177	103.405	163.116	104.554	5000
	5100	33.400	172.201	137.839	104.074	166.456	105.200	5100
	5200	33.400	175.541	138.487	104.729	169.796	105.834	5200
	5300	33.400	178.881	139.123	105.372	173.136	106.456	5300
	5400	33.400	182.221	139.748	106.003	176.476	107.067	5400
	5500	33.400	185.561	140.361	106.622	179.816	107.667	5500
	5600	33.400	188.901	140.962	107.230	183.156	108.256	5600
	5700	33.400	192.241	141.554	107.827	186.496	108.835	5700
	5800	33.400	195.581	142.134	108.414	189.836	109.404	5800
	5900	33.400	198.921	142.705	108.990	193.176	109.964	5900
	6000	33.400	202.261	143.267	109.557	196.516	110.514	6000

TABLE III.2. - SELECTED THERMODYNAMIC FUNCTIONS FOR Al(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.540	INFINITE	0
	100	12.996	0.485	6.983	2.133	-4.055	47.533	100
	200	21.340	2.284	19.140	7.720	-2.256	30.420	200
	298.15	24.200	4.540	28.300	13.073	0.000	28.300	298.15
	300	24.234	4.585	28.450	13.167	0.045	28.300	300
	400	25.735	7.088	35.639	17.919	2.548	29.269	400
	500	26.911	9.721	41.511	22.069	5.181	31.149	500
	600	28.043	12.468	46.517	25.737	7.928	33.304	600
	700	29.345	15.336	50.934	29.025	10.796	35.511	700
	800	31.006	18.349	54.956	32.020	13.809	37.695	800
	900	33.210	21.555	58.729	34.779	17.015	39.823	900
cr	933.61	34.105	22.686	59.963	35.664	18.146	40.527	933.61
ℓ	933.61	31.750	33.386	71.424	35.664	28.846	40.527	933.61
	1000	31.750	35.494	73.605	38.111	30.954	42.651	1000
	1100	31.750	38.669	76.631	41.478	34.129	45.605	1100
	1200	31.750	41.844	79.394	44.524	37.304	48.307	1200
	1300	31.750	45.019	81.935	47.305	40.479	50.797	1300
	1400	31.750	48.194	84.288	49.864	43.654	53.107	1400
	1500	31.750	51.369	86.479	52.233	46.829	55.259	1500
	1600	31.750	54.544	88.528	54.438	50.004	57.275	1600
	1700	31.750	57.719	90.452	56.500	53.179	59.171	1700
	1800	31.750	60.894	92.267	58.437	56.354	60.960	1800
	1900	31.750	64.069	93.984	60.263	59.529	62.653	1900
	2000	31.750	67.244	95.612	61.990	62.704	64.260	2000
	2100	31.750	70.419	97.162	63.629	65.879	65.791	2100
	2200	31.750	73.594	98.639	65.187	69.054	67.250	2200
	2300	31.750	76.769	100.050	66.672	72.229	68.646	2300
	2400	31.750	79.944	101.401	68.091	75.404	69.983	2400
	2500	31.750	83.119	102.697	69.450	78.579	71.266	2500
	2600	31.750	86.294	103.942	70.753	81.754	72.499	2600
	2700	31.750	89.469	105.141	72.004	84.929	73.686	2700
	2800	31.750	92.644	106.295	73.208	88.104	74.830	2800
	2900	31.750	95.819	107.410	74.369	91.279	75.934	2900
	3000	31.750	98.994	108.486	75.488	94.454	77.001	3000
	3100	31.750	102.169	109.527	76.569	97.629	78.034	3100
	3200	31.750	105.344	110.535	77.615	100.804	79.034	3200
	3300	31.750	108.519	111.512	78.628	103.979	80.003	3300
	3400	31.750	111.694	112.460	79.609	107.154	80.944	3400
	3500	31.750	114.869	113.380	80.561	110.329	81.858	3500
	3600	31.750	118.044	114.275	81.485	113.504	82.746	3600
	3700	31.750	121.219	115.145	82.383	116.679	83.610	3700
	3800	31.750	124.394	115.991	83.256	119.854	84.451	3800
	3900	31.750	127.569	116.816	84.106	123.029	85.270	3900
	4000	31.750	130.744	117.620	84.934	126.204	86.069	4000
	4100	31.750	133.919	118.404	85.741	129.379	86.848	4100
	4200	31.750	137.094	119.169	86.528	132.554	87.608	4200
	4300	31.750	140.269	119.916	87.295	135.729	88.351	4300
	4400	31.750	143.444	120.646	88.045	138.904	89.077	4400
	4500	31.750	146.619	121.359	88.777	142.079	89.786	4500
	4600	31.750	149.794	122.057	89.493	145.254	90.480	4600
	4700	31.750	152.969	122.740	90.194	148.429	91.159	4700
	4800	31.750	156.144	123.409	90.879	151.604	91.824	4800
	4900	31.750	159.319	124.063	91.549	154.779	92.476	4900
	5000	31.750	162.494	124.705	92.206	157.954	93.114	5000
	5100	31.750	165.669	125.333	92.849	161.129	93.739	5100
	5200	31.750	168.844	125.950	93.480	164.304	94.353	5200
	5300	31.750	172.019	126.555	94.098	167.479	94.955	5300
	5400	31.750	175.194	127.148	94.705	170.654	95.546	5400
	5500	31.750	178.369	127.731	95.300	173.829	96.126	5500
	5600	31.750	181.544	128.303	95.884	177.004	96.695	5600
	5700	31.750	184.719	128.865	96.458	180.179	97.254	5700
	5800	31.750	187.894	129.417	97.021	183.354	97.804	5800
	5900	31.750	191.069	129.960	97.575	186.529	98.345	5900
	6000	31.750	194.244	130.493	98.119	189.704	98.876	6000

TABLE III.3. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ar

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
100	20.786	2.079	132.139	111.353	-4.119	173.327	100
200	20.786	4.157	146.547	125.761	-2.040	156.748	200
298.15	20.786	6.197	154.847	134.060	0.000	154.847	298.15
300	20.786	6.236	154.975	134.189	0.038	154.847	300
400	20.786	8.315	160.955	140.169	2.117	155.662	400
500	20.786	10.393	165.593	144.807	4.196	157.202	500
600	20.786	12.472	169.383	148.597	6.274	158.926	600
700	20.786	14.550	172.587	151.801	8.353	160.655	700
800	20.786	16.629	175.363	154.577	10.432	162.324	800
900	20.786	18.708	177.811	157.025	12.510	163.911	900
1000	20.786	20.786	180.001	159.215	14.589	165.413	1000
1100	20.786	22.865	181.982	161.196	16.667	166.830	1100
1200	20.786	24.944	183.791	163.005	18.746	168.169	1200
1300	20.786	27.022	185.455	164.669	20.825	169.436	1300
1400	20.786	29.101	186.995	166.209	22.903	170.636	1400
1500	20.786	31.179	188.429	167.643	24.982	171.775	1500
1600	20.786	33.258	189.771	168.985	27.061	172.858	1600
1700	20.786	35.337	191.031	170.245	29.139	173.890	1700
1800	20.786	37.415	192.219	171.433	31.218	174.876	1800
1900	20.786	39.494	193.343	172.557	33.296	175.819	1900
2000	20.786	41.573	194.409	173.623	35.375	176.722	2000
2100	20.786	43.651	195.423	174.637	37.454	177.588	2100
2200	20.786	45.730	196.390	175.604	39.532	178.421	2200
2300	20.786	47.808	197.314	176.528	41.611	179.223	2300
2400	20.786	49.887	198.199	177.413	43.690	179.995	2400
2500	20.786	51.966	199.048	178.261	45.768	180.740	2500
2600	20.786	54.044	199.863	179.077	47.847	181.460	2600
2700	20.786	56.123	200.647	179.861	49.926	182.156	2700
2800	20.786	58.202	201.403	180.617	52.004	182.830	2800
2900	20.786	60.280	202.133	181.346	54.083	183.483	2900
3000	20.786	62.359	202.837	182.051	56.161	184.117	3000
3100	20.786	64.437	203.519	182.733	58.240	184.732	3100
3200	20.786	66.516	204.179	183.393	60.319	185.329	3200
3300	20.786	68.595	204.819	184.032	62.397	185.910	3300
3400	20.786	70.673	205.439	184.653	64.476	186.476	3400
3500	20.786	72.752	206.042	185.255	66.555	187.026	3500
3600	20.786	74.831	206.627	185.841	68.633	187.562	3600
3700	20.786	76.909	207.197	186.410	70.712	188.085	3700
3800	20.786	78.988	207.751	186.965	72.790	188.596	3800
3900	20.786	81.066	208.291	187.505	74.869	189.094	3900
4000	20.786	83.145	208.817	188.031	76.948	189.580	4000
4100	20.786	85.224	209.331	188.544	79.026	190.056	4100
4200	20.786	87.302	209.831	189.045	81.105	190.521	4200
4300	20.786	89.381	210.321	189.534	83.184	190.976	4300
4400	20.786	91.460	210.798	190.012	85.262	191.421	4400
4500	20.786	93.538	211.266	190.479	87.341	191.856	4500
4600	20.786	95.617	211.722	190.936	89.419	192.283	4600
4700	20.786	97.695	212.169	191.383	91.498	192.702	4700
4800	20.786	99.774	212.607	191.821	93.577	193.112	4800
4900	20.786	101.853	213.036	192.249	95.655	193.514	4900
5000	20.786	103.931	213.456	192.669	97.734	193.909	5000
5100	20.786	106.010	213.867	193.081	99.813	194.296	5100
5200	20.786	108.089	214.271	193.485	101.891	194.676	5200
5300	20.786	110.167	214.667	193.880	103.970	195.050	5300
5400	20.786	112.246	215.055	194.269	106.048	195.417	5400
5500	20.786	114.325	215.437	194.650	108.127	195.777	5500
5600	20.786	116.403	215.811	195.025	110.206	196.132	5600
5700	20.786	118.482	216.179	195.393	112.284	196.480	5700
5800	20.786	120.560	216.541	195.754	114.363	196.823	5800
5900	20.786	122.639	216.896	196.110	116.442	197.160	5900
6000	20.786	124.718	217.245	196.459	118.520	197.492	6000
6200	20.786	128.875	217.927	197.141	122.677	198.140	6200
6400	20.786	133.032	218.587	197.801	126.835	198.769	6400
6600	20.786	137.189	219.227	198.440	130.992	199.379	6600
6800	20.786	141.347	219.847	199.061	135.149	199.972	6800
7000	20.787	145.504	220.450	199.663	139.307	200.549	7000
7200	20.787	149.661	221.035	200.249	143.464	201.110	7200
7400	20.787	153.819	221.605	200.818	147.621	201.656	7400
7600	20.787	157.976	222.159	201.373	151.779	202.188	7600
7800	20.788	162.134	222.699	201.913	155.936	202.707	7800
8000	20.789	166.291	223.225	202.439	160.094	203.214	8000

TABLE III.3. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.790	170.449	223.739	202.952	164.252	203.708	8200
8400	20.792	174.607	224.240	203.453	168.410	204.191	8400
8600	20.794	178.766	224.729	203.942	172.568	204.663	8600
8800	20.797	182.925	225.207	204.420	176.728	205.124	8800
9000	20.802	187.085	225.674	204.887	180.888	205.576	9000
9200	20.807	191.246	226.132	205.344	185.048	206.018	9200
9400	20.815	195.408	226.579	205.791	189.210	206.450	9400
9600	20.824	199.572	227.018	206.229	193.374	206.874	9600
9800	20.837	203.738	227.447	206.658	197.540	207.290	9800
10000	20.848	207.904	227.868	207.078	201.707	207.697	10000
10500	20.900	218.340	228.886	208.092	212.142	208.682	10500
11000	20.981	228.806	229.860	209.059	222.609	209.623	11000
11500	21.104	239.322	230.795	209.984	233.124	210.523	11500
12000	21.275	249.904	231.696	210.870	243.707	211.387	12000
12500	21.511	260.582	232.567	211.721	254.385	212.216	12500
13000	21.846	271.411	233.417	212.539	265.213	213.015	13000
13500	22.299	282.442	234.249	213.327	276.245	213.787	13500
14000	22.882	293.725	235.070	214.089	287.528	214.532	14000
14500	23.546	305.245	235.878	214.826	299.048	215.254	14500
15000	24.274	317.011	236.674	215.540	310.813	215.953	15000
15500	25.245	329.315	237.481	216.235	323.117	216.634	15500
16000	26.450	342.230	238.301	216.911	336.033	217.299	16000
16500	27.859	355.799	239.136	217.572	349.601	217.948	16500
17000	29.347	369.892	239.976	218.217	363.694	218.582	17000
17500	30.985	384.694	240.832	218.850	378.496	219.204	17500
18000	31.748	398.206	241.580	219.457	392.009	219.802	18000
18500	33.687	414.558	242.476	220.067	408.361	220.402	18500
19000	35.495	431.239	243.362	220.665	425.041	220.991	19000
19500	36.527	446.638	244.145	221.241	440.441	221.559	19500
20000	37.320	461.844	244.895	221.802	455.647	222.112	20000

TABLE III.4. - SELECTED THERMODYNAMIC FUNCTIONS FOR B(β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-1.214	INFINITE	0
	100	1.076	0.024	0.308	0.068	-1.190	12.208	100
	110	1.421	0.037	0.426	0.090	-1.177	11.126	110
	130	2.250	0.073	0.728	0.166	-1.141	9.505	130
	150	3.227	0.127	1.117	0.270	-1.087	8.364	150
	160	3.755	0.162	1.342	0.330	-1.052	7.917	160
	180	4.859	0.248	1.848	0.470	-0.966	7.215	180
	200	5.998	0.357	2.419	0.634	-0.857	6.704	200
	210	6.571	0.420	2.725	0.725	-0.794	6.506	210
	230	7.708	0.563	3.374	0.926	-0.651	6.204	230
	250	8.821	0.728	4.063	1.151	-0.486	6.007	250
	260	9.363	0.819	4.419	1.269	-0.395	5.938	260
	290	10.916	1.123	5.526	1.654	-0.091	5.840	290
	298.15	11.315	1.214	5.834	1.762	0.000	5.834	298.15
	300	11.405	1.235	5.904	1.787	0.021	5.834	300
	310	11.878	1.351	6.286	1.928	0.137	5.844	310
	330	12.774	1.598	7.057	2.215	0.384	5.893	330
	350	13.654	1.862	7.834	2.514	0.648	5.983	350
	400	15.693	2.598	9.794	3.299	1.384	6.334	400
	450	17.361	3.425	11.742	4.131	2.211	6.829	450
	500	18.722	4.329	13.644	4.986	3.115	7.414	500
	550	19.843	5.294	15.483	5.858	4.080	8.065	550
	600	20.778	6.310	17.251	6.734	5.096	8.758	600
	650	21.569	7.369	18.946	7.609	6.155	9.477	650
	700	22.249	8.465	20.570	8.477	7.251	10.211	700
	750	22.840	9.592	22.125	9.336	8.378	10.954	750
	800	23.361	10.748	23.617	10.182	9.534	11.700	800
	850	23.826	11.928	25.047	11.014	10.714	12.442	850
	900	24.245	13.129	26.421	11.833	11.915	13.182	900
	950	24.627	14.351	27.742	12.636	13.137	13.914	950
	1000	24.978	15.592	29.014	13.422	14.378	14.636	1000
	1050	25.303	16.849	30.241	14.194	15.635	15.351	1050
	1100	25.606	18.122	31.425	14.950	16.908	16.054	1100
	1150	25.891	19.409	32.570	15.693	18.195	16.748	1150
	1200	26.161	20.710	33.677	16.419	19.496	17.430	1200
	1250	26.418	22.025	34.751	17.131	20.811	18.102	1250
	1300	26.663	23.352	35.792	17.829	22.138	18.763	1300
	1350	26.898	24.691	36.802	18.512	23.477	19.412	1350
	1400	27.125	26.042	37.785	19.184	24.828	20.051	1400
	1450	27.344	27.403	38.740	19.841	26.189	20.679	1450
	1500	27.557	28.776	39.671	20.487	27.562	21.296	1500
	1550	27.764	30.159	40.578	21.121	28.945	21.904	1550
	1600	27.966	31.552	41.463	21.743	30.338	22.502	1600
	1700	28.356	34.369	43.170	22.953	33.155	23.667	1700
	1750	28.546	35.791	43.995	23.543	34.577	24.237	1750
	1800	28.732	37.223	44.801	24.122	36.009	24.796	1800
	1850	28.916	38.664	45.591	24.692	37.450	25.348	1850
	1900	29.097	40.115	46.365	25.252	38.901	25.891	1900
	1950	29.275	41.574	47.123	25.803	40.360	26.426	1950
	2000	29.452	43.042	47.866	26.345	41.828	26.952	2000
	2050	29.626	44.519	48.596	26.879	43.305	27.472	2050
	2100	29.799	46.005	49.312	27.405	44.791	27.983	2100
	2150	29.970	47.499	50.015	27.922	46.285	28.487	2150
	2200	30.140	49.002	50.706	28.432	47.788	28.984	2200
	2250	30.308	50.513	51.385	28.935	49.299	29.474	2250
	2300	30.475	52.033	52.053	29.430	50.819	29.958	2300
β	2350	30.641	53.560	52.710	29.919	52.346	30.435	2350
ℓ	2350	31.750	103.768	74.075	29.919	102.554	30.435	2350
	2400	31.750	105.355	74.744	30.845	104.141	31.351	2400
	2500	31.750	108.530	76.040	32.627	107.316	33.113	2500
	2600	31.750	111.705	77.285	34.321	110.491	34.788	2600
	2700	31.750	114.880	78.483	35.935	113.666	36.384	2700
	2800	31.750	118.055	79.638	37.475	116.841	37.909	2800
	2900	31.750	121.230	80.752	38.948	120.016	39.367	2900
	3000	31.750	124.405	81.828	40.360	123.191	40.765	3000
	3100	31.750	127.580	82.869	41.714	126.366	42.106	3100
	3200	31.750	130.755	83.877	43.016	129.541	43.396	3200
	3300	31.750	133.930	84.854	44.269	132.716	44.637	3300
	3400	31.750	137.105	85.802	45.477	135.891	45.834	3400
	3500	31.750	140.280	86.723	46.643	139.066	46.989	3500
	3600	31.750	143.455	87.617	47.768	142.241	48.106	3600
	3700	31.750	146.630	88.487	48.857	145.416	49.185	3700
	3800	31.750	149.805	89.334	49.911	148.591	50.231	3800
	3900	31.750	152.980	90.158	50.933	151.766	51.244	3900
	4000	31.750	156.155	90.962	51.923	154.941	52.227	4000

TABLE III.4. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
4100	31.750	159.330	91.746	52.885	158.116	53.181	4100
4200	31.750	162.505	92.511	53.820	161.291	54.109	4200
4300	31.750	165.680	93.258	54.728	164.466	55.010	4300
4400	31.750	168.855	93.988	55.612	167.641	55.888	4400
4500	31.750	172.030	94.702	56.473	170.816	56.743	4500
4600	31.750	175.205	95.400	57.312	173.991	57.575	4600
4700	31.750	178.380	96.083	58.129	177.166	58.388	4700
4800	31.750	181.555	96.751	58.927	180.341	59.180	4800
4900	31.750	184.730	97.406	59.706	183.516	59.953	4900
5000	31.750	187.905	98.047	60.466	186.691	60.709	5000
5100	31.750	191.080	98.676	61.209	189.866	61.447	5100
5200	31.750	194.255	99.292	61.936	193.041	62.169	5200
5300	31.750	197.430	99.897	62.646	196.216	62.875	5300
5400	31.750	200.605	100.491	63.341	199.391	63.566	5400
5500	31.750	203.780	101.073	64.022	202.566	64.243	5500
5600	31.750	206.955	101.645	64.689	205.741	64.906	5600
5700	31.750	210.130	102.207	65.342	208.916	65.555	5700
5800	31.750	213.305	102.759	65.983	212.091	66.192	5800
5900	31.750	216.480	103.302	66.611	215.266	66.816	5900
6000	31.750	219.655	103.836	67.227	218.441	67.429	6000

TABLE III.5. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ba(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.907	INFINITE	0
	20	9.249	0.059	4.069	1.139	-6.848	346.488	20
	30	15.017	0.183	9.021	2.932	-6.724	233.165	30
	40	18.474	0.352	13.854	5.066	-6.555	177.741	40
	50	20.611	0.548	18.225	7.269	-6.359	145.409	50
	60	21.907	0.761	22.108	9.425	-6.146	124.542	60
	70	22.728	0.984	25.550	11.488	-5.923	110.159	70
	80	23.435	1.215	28.629	13.441	-5.692	99.779	80
	90	23.904	1.452	31.418	15.286	-5.455	92.031	90
	100	24.280	1.693	33.956	17.028	-5.214	86.098	100
	120	24.861	2.185	38.437	20.233	-4.722	77.791	120
	140	25.313	2.686	42.305	23.116	-4.221	72.452	140
	160	25.695	3.197	45.710	25.732	-3.710	68.900	160
	180	26.038	3.714	48.757	28.124	-3.193	66.496	180
	200	26.363	4.238	51.517	30.327	-2.669	64.862	200
	220	26.686	4.768	54.045	32.370	-2.139	63.766	220
	240	27.016	5.305	56.381	34.275	-1.602	63.054	240
	260	27.364	5.849	58.557	36.060	-1.058	62.625	260
	280	27.740	6.400	60.598	37.741	-0.507	62.408	280
	298.15	28.110	6.907	62.352	39.186	0.000	62.352	298.15
	300	28.141	6.959	62.526	39.329	0.052	62.353	300
	350	28.988	8.387	66.928	42.964	1.480	62.698	350
	400	29.835	9.858	70.854	46.209	2.951	63.477	400
	450	30.682	11.371	74.417	49.148	4.464	64.497	450
	500	31.529	12.926	77.693	51.841	6.019	65.655	500
	600	33.224	16.164	83.592	56.652	9.257	68.164	600
	700	34.918	19.571	88.840	60.882	12.664	70.749	700
	800	36.612	23.147	93.613	64.679	16.240	73.313	800
	900	38.306	26.893	98.023	68.142	19.986	75.817	900
cr	1000	40.000	30.808	102.147	71.339	23.901	78.246	1000
ℓ	1000	40.000	38.658	109.997	71.339	31.751	78.246	1000
	1100	40.000	42.658	113.809	75.029	35.751	81.308	1100
	1200	40.000	46.658	117.290	78.408	39.751	84.164	1200
	1300	40.000	50.658	120.492	81.524	43.751	86.837	1300
	1400	40.000	54.658	123.456	84.414	47.751	89.348	1400
	1500	40.000	58.658	126.216	87.110	51.751	91.715	1500
	1600	40.000	62.658	128.797	89.636	55.751	93.953	1600
	1700	40.000	66.658	131.222	92.011	59.751	96.074	1700
	1800	40.000	70.658	133.509	94.254	63.751	98.091	1800
	1900	40.000	74.658	135.671	96.377	67.751	100.013	1900
	2000	40.000	78.658	137.723	98.394	71.751	101.847	2000
	2100	40.000	82.658	139.675	100.313	75.751	103.602	2100
	2200	40.000	86.658	141.535	102.145	79.751	105.285	2200
	2300	40.000	90.658	143.313	103.897	83.751	106.900	2300
	2400	40.000	94.658	145.016	105.575	87.751	108.453	2400
	2500	40.000	98.658	146.649	107.185	91.751	109.948	2500
	2600	40.000	102.658	148.218	108.734	95.751	111.390	2600
	2700	40.000	106.658	149.727	110.224	99.751	112.782	2700
	2800	40.000	110.658	151.182	111.661	103.751	114.128	2800
	2900	40.000	114.658	152.586	113.048	107.751	115.430	2900
	3000	40.000	118.658	153.942	114.389	111.751	116.691	3000
	3100	40.000	122.658	155.253	115.686	115.751	117.914	3100
	3200	40.000	126.658	156.523	116.942	119.751	119.101	3200
	3300	40.000	130.658	157.754	118.161	123.751	120.254	3300
	3400	40.000	134.658	158.948	119.343	127.751	121.374	3400
	3500	40.000	138.658	160.108	120.491	131.751	122.464	3500
	3600	40.000	142.658	161.234	121.607	135.751	123.526	3600
	3700	40.000	146.658	162.330	122.693	139.751	124.560	3700
	3800	40.000	150.658	163.397	123.750	143.751	125.568	3800
	3900	40.000	154.658	164.436	124.780	147.751	126.551	3900
	4000	40.000	158.658	165.449	125.784	151.751	127.511	4000
	4100	40.000	162.658	166.437	126.764	155.751	128.448	4100
	4200	40.000	166.658	167.400	127.720	159.751	129.364	4200
	4300	40.000	170.658	168.342	128.654	163.751	130.260	4300
	4400	40.000	174.658	169.261	129.566	167.751	131.136	4400
	4500	40.000	178.658	170.160	130.458	171.751	131.993	4500
	4600	40.000	182.658	171.039	131.331	175.751	132.832	4600
	4700	40.000	186.658	171.900	132.185	179.751	133.655	4700
	4800	40.000	190.658	172.742	133.021	183.751	134.460	4800
	4900	40.000	194.658	173.566	133.840	187.751	135.250	4900
	5000	40.000	198.658	174.375	134.643	191.751	136.024	5000

TABLE III.5. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
5100	40.000	202.658	175.167	135.430	195.751	136.784	5100
5200	40.000	206.658	175.943	136.201	199.751	137.530	5200
5300	40.000	210.658	176.705	136.958	203.751	138.262	5300
5400	40.000	214.658	177.453	137.701	207.751	138.981	5400
5500	40.000	218.658	178.187	138.431	211.751	139.687	5500
5600	40.000	222.658	178.908	139.147	215.751	140.381	5600
5700	40.000	226.658	179.616	139.851	219.751	141.063	5700
5800	40.000	230.658	180.311	140.543	223.751	141.734	5800
5900	40.000	234.658	180.995	141.223	227.751	142.393	5900
6000	40.000	238.658	181.667	141.891	231.751	143.042	6000

TABLE III.6. - SELECTED THERMODYNAMIC FUNCTIONS FOR Be(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-1.942	INFINITE	0
	40	0.089	0.001	0.025	0.007	-1.941	48.559	40
	50	0.191	0.002	0.057	0.014	-1.940	38.855	50
	60	0.309	0.005	0.101	0.024	-1.937	32.392	60
	70	0.509	0.009	0.162	0.039	-1.933	27.783	70
	80	0.818	0.015	0.249	0.060	-1.927	24.336	80
	90	1.251	0.025	0.369	0.087	-1.917	21.666	90
	100	1.738	0.041	0.529	0.123	-1.901	19.544	100
	120	3.216	0.090	0.971	0.225	-1.853	16.409	120
	140	4.910	0.171	1.593	0.374	-1.771	14.246	140
	160	6.652	0.286	2.362	0.573	-1.656	12.711	160
	180	8.364	0.437	3.245	0.820	-1.506	11.609	180
	200	10.003	0.620	4.212	1.110	-1.322	10.821	200
	220	11.546	0.836	5.238	1.438	-1.106	10.266	220
	240	12.978	1.081	6.305	1.799	-0.861	9.891	240
	260	14.291	1.354	7.397	2.188	-0.588	9.657	260
	280	15.478	1.652	8.500	2.599	-0.290	9.535	280
	298.15	16.443	1.942	9.503	2.989	0.000	9.503	298.15
	300	16.473	1.972	9.604	3.029	0.030	9.503	300
	350	18.521	2.851	12.308	4.163	0.909	9.712	350
	400	19.965	3.815	14.880	5.343	1.873	10.199	400
	450	21.061	4.841	17.297	6.539	2.899	10.855	450
	500	21.943	5.917	19.564	7.729	3.975	11.613	500
	600	23.336	8.184	23.693	10.053	6.242	13.289	600
	700	24.463	10.576	27.377	12.269	8.634	15.044	700
	800	25.458	13.073	30.710	14.369	11.131	16.797	800
	900	26.384	15.665	33.762	16.357	13.723	18.515	900
	1000	27.274	18.348	36.588	18.240	16.406	20.182	1000
	1100	28.147	21.119	39.229	20.030	19.177	21.795	1100
	1200	29.015	23.977	41.715	21.734	22.035	23.353	1200
	1300	29.885	26.922	44.072	23.363	24.980	24.856	1300
	1400	30.762	29.955	46.319	24.923	28.013	26.310	1400
	1500	31.649	33.075	48.471	26.421	31.133	27.716	1500
α	1543	32.035	34.444	49.371	27.048	32.502	28.307	1543
β	1543	30.000	41.144	53.714	27.048	39.202	28.307	1543
β	1563	30.000	41.744	54.100	27.392	39.802	28.635	1563
ℓ	1563	29.480	49.744	59.218	27.392	47.802	28.635	1563
	1600	29.480	50.835	59.908	28.136	48.893	29.350	1600
	1700	29.480	53.783	61.695	30.058	51.841	31.200	1700
	1800	29.480	56.731	63.380	31.863	54.789	32.942	1800
	1900	29.480	59.679	64.974	33.564	57.737	34.586	1900
	2000	29.480	62.627	66.486	35.173	60.685	36.144	2000
	2100	29.480	65.575	67.925	36.698	63.633	37.623	2100
	2200	29.480	68.523	69.296	38.149	66.581	39.032	2200
	2300	29.480	71.471	70.606	39.532	69.529	40.376	2300
	2400	29.480	74.419	71.861	40.853	72.477	41.662	2400
	2500	29.480	77.367	73.065	42.118	75.425	42.895	2500
	2600	29.480	80.315	74.221	43.330	78.373	44.077	2600
	2700	29.480	83.263	75.333	44.495	81.321	45.214	2700
	2800	29.480	86.211	76.405	45.616	84.269	46.309	2800
	2900	29.480	89.159	77.440	46.695	87.217	47.365	2900
	3000	29.480	92.107	78.439	47.737	90.165	48.384	3000
	3100	29.480	95.055	79.406	48.743	93.113	49.370	3100
	3200	29.480	98.003	80.342	49.716	96.061	50.323	3200
	3300	29.480	100.951	81.249	50.658	99.009	51.246	3300
	3400	29.480	103.899	82.129	51.571	101.957	52.142	3400
	3500	29.480	106.847	82.984	52.456	104.905	53.011	3500
	3600	29.480	109.795	83.814	53.316	107.853	53.855	3600
	3700	29.480	112.743	84.622	54.151	110.801	54.676	3700
	3800	29.480	115.691	85.408	54.963	113.749	55.474	3800
	3900	29.480	118.639	86.174	55.754	116.697	56.252	3900
	4000	29.480	121.587	86.920	56.523	119.645	57.009	4000
	4100	29.480	124.535	87.648	57.274	122.593	57.747	4100
	4200	29.480	127.483	88.359	58.005	125.541	58.468	4200
	4300	29.480	130.431	89.052	58.719	128.489	59.171	4300
	4400	29.480	133.379	89.730	59.417	131.437	59.858	4400
	4500	29.480	136.327	90.392	60.098	134.385	60.529	4500
	4600	29.480	139.275	91.040	60.763	137.333	61.185	4600
	4700	29.480	142.223	91.674	61.414	140.281	61.827	4700
	4800	29.480	145.171	92.295	62.051	143.229	62.456	4800
	4900	29.480	148.119	92.903	62.675	146.177	63.071	4900
	5000	29.480	151.067	93.499	63.285	149.125	63.674	5000

TABLE III.6. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
5100	29.480	154.015	94.082	63.883	152.073	64.264	5100
5200	29.480	156.963	94.655	64.470	155.021	64.843	5200
5300	29.480	159.911	95.216	65.044	157.969	65.411	5300
5400	29.480	162.859	95.767	65.608	160.917	65.968	5400
5500	29.480	165.807	96.308	66.162	163.865	66.515	5500
5600	29.480	168.755	96.839	66.705	166.813	67.051	5600
5700	29.480	171.703	97.361	67.238	169.761	67.579	5700
5800	29.480	174.651	97.874	67.762	172.709	68.097	5800
5900	29.480	177.599	98.378	68.276	175.657	68.605	5900
6000	29.480	180.547	98.873	68.782	178.605	69.106	6000

TABLE III.7. - SELECTED THERMODYNAMIC FUNCTIONS FOR Br_2(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-24.520	INFINITE	0
	5	0.330	0.000	0.111	0.029	-24.520	4904.029	5
	10	2.560	0.007	0.879	0.179	-24.513	2452.179	10
	15	7.220	0.030	2.728	0.728	-24.490	1635.395	15
	20	12.720	0.080	5.543	1.543	-24.440	1227.543	20
	25	18.030	0.157	8.955	2.675	-24.363	983.475	25
	30	22.440	0.258	12.641	4.041	-24.262	821.374	30
	35	26.050	0.380	16.379	5.522	-24.140	706.093	35
	40	28.990	0.518	20.055	7.105	-24.002	620.105	40
	45	31.380	0.669	23.612	8.745	-23.851	553.634	45
	50	33.340	0.831	27.023	10.403	-23.689	500.803	50
	60	36.330	1.180	33.381	13.714	-23.340	422.381	60
	70	38.610	1.555	39.161	16.947	-22.965	367.232	70
	80	40.510	1.950	44.445	20.070	-22.570	326.570	80
	90	42.150	2.364	49.315	23.048	-22.156	295.493	90
	100	43.600	2.793	53.833	25.903	-21.727	271.103	100
	110	44.890	3.235	58.053	28.644	-21.285	251.553	110
	120	46.070	3.690	62.014	31.264	-20.830	235.597	120
	130	47.170	4.156	65.747	33.778	-20.364	222.393	130
	140	48.200	4.633	69.283	36.190	-19.887	211.333	140
	150	49.180	5.120	72.644	38.511	-19.400	201.977	150
	160	50.130	5.616	75.850	40.750	-18.904	194.000	160
	170	51.050	6.122	78.917	42.905	-18.398	187.141	170
	180	51.950	6.637	81.862	44.990	-17.883	181.212	180
	190	52.850	7.161	84.696	47.007	-17.359	176.059	190
	200	53.770	7.694	87.431	48.961	-16.826	171.561	200
	210	54.710	8.237	90.077	50.853	-16.283	167.615	210
	220	55.710	8.789	92.645	52.695	-15.731	164.150	220
	230	56.780	9.351	95.144	54.487	-15.169	161.096	230
	240	57.940	9.924	97.584	56.234	-14.596	158.401	240
	250	59.230	10.510	99.976	57.936	-14.010	156.016	250
	260	60.690	11.110	102.329	59.598	-13.410	153.906	260
cr	265.90	61.640	11.471	103.700	60.560	-13.049	152.775	265.90
ℓ	265.90	77.740	22.043	143.461	60.561	-2.477	152.777	265.90
	270	77.350	22.361	144.648	61.829	-2.159	152.644	270
	280	76.570	23.131	147.447	64.836	-1.389	152.408	280
	290	76.000	23.894	150.125	67.732	-0.626	152.284	290
	298.15	75.680	24.520	152.210	69.970	0.000	152.210	298.15
	300	75.630	24.661	152.680	70.477	0.141	152.210	300
	332.50	75.302	27.110	160.429	78.896	2.590	152.640	332.50
	340	75.302	27.675	162.108	80.712	3.155	152.830	340
	360	75.302	29.181	166.412	85.355	4.661	153.466	360
	380	75.302	30.687	170.484	89.729	6.167	154.256	380
	400	75.302	32.193	174.346	93.864	7.673	155.164	400
	500	75.302	39.723	191.149	111.703	15.203	160.743	500
	600	75.302	47.253	204.878	126.123	22.733	166.990	600
	700	75.302	54.783	216.486	138.224	30.263	173.253	700
	800	75.302	62.313	226.541	148.650	37.793	179.300	800
	900	75.302	69.844	235.411	157.807	45.324	185.051	900
	1000	75.302	77.374	243.345	165.971	52.854	190.491	1000
	1100	75.302	84.904	250.522	173.336	60.384	195.627	1100
	1200	75.302	92.434	257.074	180.045	67.914	200.478	1200
	1300	75.302	99.964	263.101	186.205	75.444	205.067	1300
	1400	75.302	107.495	268.682	191.900	82.975	209.414	1400
	1500	75.302	115.025	273.877	197.194	90.505	213.540	1500
	1600	75.302	122.555	278.737	202.140	98.035	217.465	1600
	1700	75.302	130.085	283.302	206.781	105.565	221.205	1700
	1800	75.302	137.615	287.606	211.153	113.095	224.775	1800
	1900	75.302	145.146	291.677	215.285	120.626	228.190	1900
	2000	75.302	152.676	295.540	219.202	128.156	231.462	2000
	2100	75.302	160.206	299.214	222.925	135.686	234.601	2100
	2200	75.302	167.736	302.717	226.473	143.216	237.619	2200
	2300	75.302	175.266	306.064	229.861	150.746	240.522	2300
	2400	75.302	182.797	309.269	233.104	158.277	243.320	2400
	2500	75.302	190.327	312.343	236.212	165.807	246.020	2500
	2600	75.302	197.857	315.296	239.198	173.337	248.628	2600
	2700	75.302	205.387	318.138	242.069	180.867	251.150	2700
	2800	75.302	212.917	320.877	244.835	188.397	253.592	2800
	2900	75.302	220.448	323.519	247.503	195.928	255.958	2900
	3000	75.302	227.978	326.072	250.080	203.458	258.253	3000
	3100	75.302	235.508	328.541	252.571	210.988	260.481	3100
	3200	75.302	243.038	330.932	254.983	218.518	262.645	3200
	3300	75.302	250.568	333.249	257.319	226.048	264.750	3300
	3400	75.302	258.099	335.497	259.586	233.579	266.798	3400
	3500	75.302	265.629	337.680	261.786	241.109	268.792	3500
	3600	75.302	273.159	339.801	263.924	248.639	270.735	3600
	3700	75.302	280.689	341.865	266.003	256.169	272.630	3700
	3800	75.302	288.219	343.873	268.026	263.699	274.478	3800
	3900	75.302	295.750	345.829	269.996	271.230	276.283	3900
	4000	75.302	303.280	347.735	271.915	278.760	278.045	4000

TABLE III.7. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
4100	75.302	310.810	349.595	273.787	286.290	279.768	4100
4200	75.302	318.340	351.409	275.614	293.820	281.452	4200
4300	75.302	325.870	353.181	277.397	301.350	283.100	4300
4400	75.302	333.401	354.912	279.139	308.881	284.712	4400
4500	75.302	340.931	356.605	280.842	316.411	286.291	4500
4600	75.302	348.461	358.260	282.507	323.941	287.838	4600
4700	75.302	355.991	359.879	284.136	331.471	289.353	4700
4800	75.302	363.521	361.464	285.731	339.001	290.839	4800
4900	75.302	371.052	363.017	287.292	346.532	292.296	4900
5000	75.302	378.582	364.538	288.822	354.062	293.726	5000
5100	75.302	386.112	366.030	290.321	361.592	295.129	5100
5200	75.302	393.642	367.492	291.791	369.122	296.507	5200
5300	75.302	401.172	368.926	293.233	376.652	297.860	5300
5400	75.302	408.703	370.334	294.648	384.183	299.189	5400
5500	75.302	416.233	371.715	296.037	391.713	300.495	5500
5600	75.302	423.763	373.072	297.400	399.243	301.779	5600
5700	75.302	431.293	374.405	298.740	406.773	303.041	5700
5800	75.302	438.823	375.715	300.056	414.303	304.283	5800
5900	75.302	446.354	377.002	301.349	421.834	305.505	5900
6000	75.302	453.884	378.268	302.620	429.364	306.707	6000

TABLE III.8. - SELECTED THERMODYNAMIC FUNCTIONS FOR C(gr)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-1.053	INFINITE	0
20	0.084	0.001	0.041	0.012	-1.053	52.687	20
30	0.179	0.002	0.092	0.030	-1.052	35.146	30
40	0.320	0.004	0.162	0.054	-1.049	26.392	40
50	0.502	0.008	0.252	0.084	-1.045	21.154	50
60	0.704	0.014	0.361	0.120	-1.039	17.679	60
70	0.925	0.023	0.486	0.164	-1.031	15.214	70
80	1.163	0.033	0.625	0.213	-1.021	13.381	80
90	1.418	0.046	0.777	0.267	-1.008	11.973	90
100	1.688	0.061	0.940	0.326	-0.992	10.861	100
110	1.972	0.080	1.114	0.390	-0.974	9.967	110
120	2.270	0.101	1.298	0.457	-0.953	9.236	120
130	2.580	0.125	1.492	0.530	-0.928	8.633	130
140	2.901	0.153	1.695	0.606	-0.901	8.131	140
150	3.232	0.183	1.906	0.685	-0.870	7.708	150
160	3.572	0.217	2.126	0.769	-0.836	7.353	160
170	3.920	0.255	2.353	0.855	-0.799	7.052	170
180	4.276	0.296	2.587	0.945	-0.758	6.797	180
190	4.637	0.340	2.828	1.038	-0.713	6.582	190
200	5.001	0.388	3.075	1.133	-0.665	6.401	200
210	5.365	0.440	3.328	1.232	-0.613	6.249	210
220	5.729	0.496	3.586	1.333	-0.558	6.122	220
230	6.092	0.555	3.848	1.436	-0.499	6.016	230
240	6.455	0.618	4.115	1.542	-0.436	5.932	240
250	6.816	0.684	4.386	1.651	-0.370	5.865	250
260	7.176	0.754	4.660	1.761	-0.300	5.813	260
270	7.534	0.827	4.938	1.874	-0.226	5.775	270
273.15	7.646	0.851	5.026	1.909	-0.202	5.766	273.15
280	7.889	0.904	5.218	1.988	-0.149	5.750	280
290	8.242	0.985	5.501	2.104	-0.068	5.737	290
298.15	8.528	1.053	5.734	2.201	0.000	5.734	298.15
300	8.592	1.069	5.787	2.223	0.016	5.734	300
320	9.259	1.248	6.362	2.463	0.194	5.755	320
340	9.922	1.440	6.943	2.709	0.386	5.807	340
360	10.572	1.645	7.529	2.961	0.591	5.887	360
380	11.207	1.862	8.117	3.216	0.809	5.988	380
400	11.826	2.093	8.708	3.476	1.039	6.110	400
420	12.427	2.335	9.299	3.739	1.282	6.247	420
440	13.007	2.590	9.891	4.005	1.536	6.400	440
460	13.566	2.855	10.482	4.274	1.802	6.565	460
480	14.103	3.132	11.070	4.545	2.079	6.739	480
500	14.616	3.419	11.657	4.818	2.366	6.925	500
550	15.797	4.180	13.106	5.505	3.127	7.421	550
600	16.836	4.997	14.526	6.198	3.943	7.954	600
650	17.744	5.862	15.911	6.893	4.808	8.514	650
700	18.535	6.769	17.255	7.585	5.716	9.090	700
800	19.829	8.690	19.819	8.956	7.637	10.273	800
900	20.827	10.725	22.214	10.297	9.671	11.468	900
1000	21.612	12.849	24.451	11.602	11.795	12.656	1000
1100	22.243	15.043	26.542	12.867	13.989	13.824	1100
1200	22.763	17.294	28.500	14.088	16.240	14.966	1200
1300	23.199	19.592	30.340	15.269	18.538	16.080	1300
1400	23.572	21.932	32.073	16.407	20.878	17.160	1400
1500	23.897	24.305	33.711	17.508	23.251	18.210	1500
1600	24.185	26.709	35.263	18.570	25.655	19.228	1600
1700	24.443	29.141	36.737	19.595	28.087	20.215	1700
1800	24.676	31.597	38.141	20.587	30.543	21.172	1800
1900	24.891	34.076	39.481	21.546	33.022	22.101	1900
2000	25.089	36.575	40.762	22.474	35.521	23.001	2000
2100	25.275	39.093	41.991	23.375	38.039	23.877	2100
2200	25.450	41.630	43.171	24.248	40.576	24.727	2200
2300	25.616	44.183	44.306	25.096	43.129	25.554	2300
2400	25.773	46.752	45.400	25.920	45.698	26.359	2400
2500	25.924	49.338	46.455	26.720	48.284	27.141	2500
2600	26.070	51.937	47.474	27.498	50.883	27.903	2600
2700	26.211	54.551	48.461	28.257	53.497	28.647	2700
2800	26.347	57.179	49.417	28.996	56.125	29.372	2800
2900	26.480	59.820	50.343	29.715	58.766	30.079	2900
3000	26.609	62.476	51.243	30.418	61.422	30.769	3000
3100	26.736	65.142	52.118	31.104	64.088	31.444	3100
3200	26.860	67.822	52.969	31.775	66.768	32.104	3200
3300	26.982	70.514	53.797	32.429	69.460	32.748	3300
3400	27.102	73.218	54.604	33.069	72.164	33.379	3400
3500	27.220	75.935	55.392	33.696	74.881	33.997	3500
3600	27.337	78.662	56.160	34.309	77.608	34.602	3600
3700	27.453	81.402	56.911	34.910	80.348	35.195	3700
3800	27.568	84.153	57.644	35.498	83.099	35.776	3800
3900	27.681	86.915	58.362	36.076	85.861	36.346	3900
4000	27.794	89.690	59.064	36.641	88.636	36.905	4000

TABLE III.8. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
4100	27.906	92.474	59.752	37.197	91.420	37.454	4100
4200	28.017	95.270	60.426	37.743	94.216	37.993	4200
4300	28.128	98.078	61.086	38.277	97.024	38.522	4300
4400	28.238	100.900	61.734	38.802	99.846	39.042	4400
4500	28.347	103.730	62.370	39.319	102.676	39.553	4500
4600	28.456	106.570	62.994	39.827	105.516	40.056	4600
4700	28.565	109.420	63.607	40.326	108.366	40.550	4700
4800	28.673	112.280	64.210	40.818	111.226	41.038	4800
4900	28.782	115.150	64.802	41.302	114.096	41.517	4900
5000	28.890	118.040	65.385	41.777	116.986	41.988	5000

TABLE III.9. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ca(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.783	INFINITE	0
	80	18.034	0.643	12.527	4.492	-5.140	76.779	80
	90	19.327	0.830	14.729	5.508	-4.953	69.763	90
	100	20.319	1.028	16.819	6.536	-4.755	64.365	100
	120	21.746	1.450	20.659	8.576	-4.333	56.767	120
	140	22.730	1.895	24.089	10.551	-3.888	51.858	140
	160	23.448	2.357	27.174	12.440	-3.426	48.583	160
	180	23.994	2.832	29.968	14.235	-2.951	46.362	180
	200	24.420	3.316	32.519	15.937	-2.467	44.852	200
	220	24.761	3.808	34.863	17.553	-1.975	43.839	220
	240	25.045	4.306	37.030	19.087	-1.476	43.182	240
	260	25.291	4.810	39.045	20.545	-0.973	42.787	260
	280	25.518	5.318	40.928	21.935	-0.465	42.588	280
	298.15	25.750	5.783	42.536	23.140	0.000	42.536	298.15
	300	25.800	5.831	42.696	23.260	0.048	42.537	300
	350	26.399	7.135	46.716	26.330	1.352	42.853	350
	400	27.112	8.472	50.287	29.106	2.689	43.563	400
	450	27.897	9.847	53.525	31.642	4.064	44.493	450
	500	28.733	11.263	56.507	33.981	5.480	45.547	500
	550	29.607	12.721	59.286	36.157	6.938	46.671	550
	600	30.513	14.224	61.901	38.194	8.441	47.832	600
	650	31.444	15.773	64.380	40.114	9.990	49.011	650
	700	32.399	17.369	66.745	41.932	11.586	50.193	700
α	716	32.709	17.890	67.481	42.495	12.107	50.572	716
β	716	29.955	18.820	68.780	42.495	13.037	50.572	716
	800	30.155	21.341	72.109	45.433	15.558	52.661	800
	900	31.009	24.394	75.704	48.599	18.611	55.025	900
	1000	32.532	27.565	79.044	51.478	21.782	57.261	1000
	1100	34.724	30.923	82.242	54.130	25.140	59.388	1100
β	1115	35.110	31.446	82.715	54.512	25.663	59.698	1115
ℓ	1115	38.000	39.986	90.374	54.512	34.203	59.698	1115
	1200	38.000	43.216	93.166	57.152	37.433	61.971	1200
	1300	38.000	47.016	96.207	60.041	41.233	64.489	1300
	1400	38.000	50.816	99.023	62.726	45.033	66.857	1400
	1500	38.000	54.616	101.645	65.234	48.833	69.090	1500
	1600	38.000	58.416	104.098	67.587	52.633	71.202	1600
	1700	38.000	62.216	106.401	69.803	56.433	73.205	1700
	1800	38.000	66.016	108.573	71.898	60.233	75.110	1800
	1900	38.000	69.816	110.628	73.882	64.033	76.926	1900
	2000	38.000	73.616	112.577	75.769	67.833	78.660	2000
	2100	38.000	77.416	114.431	77.566	71.633	80.320	2100
	2200	38.000	81.216	116.199	79.282	75.433	81.911	2200
	2300	38.000	85.016	117.888	80.924	79.233	83.439	2300
	2400	38.000	88.816	119.505	82.498	83.033	84.908	2400
	2500	38.000	92.616	121.056	84.010	86.833	86.323	2500
	2600	38.000	96.416	122.547	85.464	90.633	87.688	2600
	2700	38.000	100.216	123.981	86.864	94.433	89.006	2700
	2800	38.000	104.016	125.363	88.214	98.233	90.280	2800
	2900	38.000	107.816	126.696	89.518	102.033	91.512	2900
	3000	38.000	111.616	127.985	90.779	105.833	92.707	3000
	3100	38.000	115.416	129.231	92.000	109.633	93.865	3100
	3200	38.000	119.216	130.437	93.182	113.433	94.989	3200
	3300	38.000	123.016	131.606	94.329	117.233	96.081	3300
	3400	38.000	126.816	132.741	95.442	121.033	97.143	3400
	3500	38.000	130.616	133.842	96.523	124.833	98.176	3500
	3600	38.000	134.416	134.913	97.575	128.633	99.181	3600
	3700	38.000	138.216	135.954	98.598	132.433	100.161	3700
	3800	38.000	142.016	136.967	99.595	136.233	101.117	3800
	3900	38.000	145.816	137.954	100.566	140.033	102.049	3900
	4000	38.000	149.616	138.917	101.513	143.833	102.958	4000
	4100	38.000	153.416	139.855	102.436	147.633	103.847	4100
	4200	38.000	157.216	140.771	103.338	151.433	104.715	4200
	4300	38.000	161.016	141.665	104.219	155.233	105.564	4300
	4400	38.000	164.816	142.538	105.080	159.033	106.394	4400
	4500	38.000	168.616	143.392	105.922	162.833	107.207	4500
	4600	38.000	172.416	144.228	106.746	166.633	108.003	4600
	4700	38.000	176.216	145.045	107.552	170.433	108.782	4700
	4800	38.000	180.016	145.845	108.341	174.233	109.546	4800
	4900	38.000	183.816	146.628	109.115	178.033	1 1.295	4900
	5000	38.000	187.616	147.396	109.873	181.833	111.029	5000

TABLE III.9. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
5100	38.000	191.416	148.149	110.616	185.633	111.750	5100
5200	38.000	195.216	148.886	111.345	189.433	112.457	5200
5300	38.000	199.016	149.610	112.060	193.233	113.151	5300
5400	38.000	202.816	150.321	112.762	197.033	113.833	5400
5500	38.000	206.616	151.018	113.451	200.833	114.503	5500
5600	38.000	210.416	151.703	114.128	204.633	115.161	5600
5700	38.000	214.216	152.375	114.793	208.433	115.808	5700
5800	38.000	218.016	153.036	115.447	212.233	116.444	5800
5900	38.000	221.816	153.686	116.090	216.033	117.070	5900
6000	38.000	225.616	154.324	116.722	219.833	117.685	6000

TABLE III.10. - SELECTED THERMODYNAMIC FUNCTIONS FOR Cd(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.247	INFINITE	0
	100	25.110	1.360	25.200	11.600	-4.887	74.070	100
	200	24.920	3.745	41.635	22.910	-2.502	54.145	200
	298.15	26.020	6.247	51.800	30.847	0.000	51.800	298.15
	300	26.036	6.295	51.961	30.978	0.048	51.801	300
	400	27.080	8.948	59.586	37.216	2.701	52.833	400
	500	28.337	11.718	65.761	42.325	5.471	54.819	500
cr	594.26	29.599	14.448	70.760	46.448	8.201	56.960	594.26
ℓ	594.26	29.900	20.508	80.958	46.448	14.261	56.960	594.26
	600	29.900	20.680	81.246	46.779	14.433	57.191	600
	700	29.900	23.670	85.855	52.041	17.423	60.965	700
	800	29.900	26.660	89.847	56.523	20.413	64.331	800
	900	29.900	29.650	93.369	60.425	23.403	67.366	900
	1000	29.900	32.640	96.519	63.880	26.393	70.127	1000
	1100	29.900	35.630	99.369	66.978	29.383	72.657	1100
	1200	29.900	38.620	101.971	69.788	32.373	74.993	1200
	1300	29.900	41.610	104.364	72.356	35.363	77.162	1300
	1400	29.900	44.600	106.580	74.723	38.353	79.185	1400
	1500	29.900	47.590	108.643	76.916	41.343	81.081	1500
	1600	29.900	50.580	110.572	78.960	44.333	82.864	1600
	1700	29.900	53.570	112.385	80.873	47.323	84.548	1700
	1800	29.900	56.560	114.094	82.672	50.313	86.143	1800
	1900	29.900	59.550	115.711	84.369	53.303	87.657	1900
	2000	29.900	62.540	117.244	85.974	56.293	89.098	2000
	2100	29.900	65.530	118.703	87.499	59.283	90.473	2100
	2200	29.900	68.520	120.094	88.949	62.273	91.788	2200
	2300	29.900	71.510	121.423	90.332	65.263	93.048	2300
	2400	29.900	74.500	122.696	91.654	68.253	94.257	2400
	2500	29.900	77.490	123.916	92.920	71.243	95.419	2500
	2600	29.900	80.480	125.089	94.135	74.233	96.538	2600
	2700	29.900	83.470	126.217	95.303	77.223	97.616	2700
	2800	29.900	86.460	127.305	96.426	80.213	98.657	2800
	2900	29.900	89.450	128.354	97.509	83.203	99.663	2900
	3000	29.900	92.440	129.368	98.554	86.193	100.637	3000
	3100	29.900	95.430	130.348	99.564	89.183	101.580	3100
	3200	29.900	98.420	131.297	100.541	92.173	102.493	3200
	3300	29.900	101.410	132.217	101.487	95.163	103.380	3300
	3400	29.900	104.400	133.110	102.404	98.153	104.242	3400
	3500	29.900	107.390	133.977	103.294	101.143	105.079	3500
	3600	29.900	110.380	134.819	104.158	104.133	105.893	3600
	3700	29.900	113.370	135.638	104.998	107.123	106.686	3700
	3800	29.900	116.360	136.436	105.815	110.113	107.459	3800
	3900	29.900	119.350	137.212	106.610	113.103	108.212	3900
	4000	29.900	122.340	137.969	107.384	116.093	108.946	4000
	4100	29.900	125.330	138.708	108.139	119.083	109.663	4100
	4200	29.900	128.320	139.428	108.876	122.073	110.363	4200
	4300	29.900	131.310	140.132	109.595	125.063	111.047	4300
	4400	29.900	134.300	140.819	110.297	128.053	111.716	4400
	4500	29.900	137.290	141.491	110.982	131.043	112.371	4500
	4600	29.900	140.280	142.148	111.653	134.033	113.011	4600
	4700	29.900	143.270	142.791	112.308	137.023	113.638	4700
	4800	29.900	146.260	143.421	112.950	140.013	114.252	4800
	4900	29.900	149.250	144.037	113.578	143.003	114.853	4900
	5000	29.900	152.240	144.641	114.193	145.993	115.443	5000
	5100	29.900	155.230	145.233	114.796	148.983	116.021	5100
	5200	29.900	158.220	145.814	115.387	151.973	116.589	5200
	5300	29.900	161.210	146.384	115.967	154.963	117.145	5300
	5400	29.900	164.200	146.943	116.535	157.953	117.692	5400
	5500	29.900	167.190	147.491	117.093	160.943	118.229	5500
	5600	29.900	170.180	148.030	117.641	163.933	118.756	5600
	5700	29.900	173.170	148.559	118.178	166.923	119.274	5700
	5800	29.900	176.160	149.079	118.707	169.913	119.784	5800
	5900	29.900	179.150	149.590	119.226	172.903	120.285	5900
	6000	29.900	182.140	150.093	119.736	175.893	120.777	6000

TABLE III.11. - SELECTED THERMODYNAMIC FUNCTIONS FOR Cl_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-9.181	INFINITE	0
100	29.299	2.912	189.009	159.889	-6.269	251.700	100
200	31.720	5.950	209.967	180.216	-3.231	226.122	200
298.15	33.949	9.181	223.082	192.288	0.000	223.082	298.15
300	33.981	9.244	223.292	192.478	0.063	223.082	300
400	35.296	12.714	233.266	201.480	3.533	224.433	400
500	36.064	16.285	241.232	208.662	7.104	227.024	500
600	36.547	19.917	247.853	214.658	10.736	229.959	600
700	36.874	23.589	253.512	219.813	14.408	232.929	700
800	37.111	27.289	258.452	224.340	18.108	235.817	800
900	37.294	31.009	262.834	228.379	21.828	238.581	900
1000	37.442	34.746	266.772	232.026	25.565	241.207	1000
1100	37.567	38.497	270.346	235.349	29.316	243.695	1100
1200	37.678	42.260	273.620	238.404	33.078	246.055	1200
1300	37.778	46.033	276.640	241.231	36.851	248.293	1300
1400	37.872	49.816	279.443	243.861	40.634	250.419	1400
1500	37.961	53.607	282.059	246.322	44.426	252.442	1500
1600	38.048	57.408	284.511	248.632	48.227	254.370	1600
1700	38.133	61.217	286.821	250.812	52.036	256.212	1700
1800	38.242	65.038	289.005	252.873	55.857	257.974	1800
1900	38.349	68.867	291.076	254.830	59.686	259.662	1900
2000	38.468	72.708	293.046	256.692	63.527	261.282	2000
2100	38.604	76.561	294.926	258.468	67.380	262.840	2100
2200	38.760	80.429	296.725	260.166	71.248	264.339	2200
2300	38.940	84.314	298.452	261.793	75.133	265.785	2300
2400	39.145	88.218	300.114	263.356	79.037	267.182	2400
2500	39.379	92.144	301.716	264.858	82.963	268.530	2500
2600	39.639	96.095	303.266	266.306	86.914	269.837	2600
2700	39.927	100.073	304.767	267.703	90.892	271.103	2700
2800	40.239	104.081	306.225	269.053	94.900	272.332	2800
2900	40.571	108.121	307.643	270.359	98.940	273.525	2900
3000	40.920	112.195	309.024	271.625	103.014	274.686	3000
3100	41.281	116.306	310.371	272.853	107.125	275.814	3100
3200	41.648	120.452	311.688	274.046	111.271	276.915	3200
3300	42.014	124.635	312.975	275.206	115.454	277.989	3300
3400	42.374	128.855	314.234	276.335	119.673	279.036	3400
3500	42.721	133.110	315.468	277.436	123.928	280.060	3500
3600	43.051	137.399	316.676	278.510	128.218	281.060	3600
3700	43.357	141.719	317.860	279.557	132.538	282.039	3700
3800	43.636	146.069	319.020	280.581	136.888	282.997	3800
3900	43.882	150.445	320.156	281.580	141.264	283.934	3900
4000	44.094	154.844	321.270	282.559	145.663	284.854	4000
4100	44.268	159.262	322.361	283.517	150.081	285.756	4100
4200	44.403	163.696	323.430	284.455	154.515	286.641	4200
4300	44.498	168.142	324.476	285.373	158.961	287.508	4300
4400	44.552	172.594	325.499	286.273	163.413	288.360	4400
4500	44.565	177.050	326.501	287.156	167.869	289.197	4500
4600	44.538	181.506	327.480	288.022	172.325	290.018	4600
4700	44.473	185.957	328.437	288.872	176.776	290.825	4700
4800	44.370	190.399	329.372	289.705	181.218	291.618	4800
4900	44.233	194.829	330.286	290.525	185.648	292.399	4900
5000	44.062	199.244	331.178	291.329	190.063	293.165	5000
5100	43.860	203.640	332.048	292.118	194.459	293.919	5100
5200	43.630	208.016	332.898	292.895	198.834	294.661	5200
5300	43.374	212.366	333.726	293.657	203.184	295.389	5300
5400	43.095	216.690	334.535	294.407	207.508	296.108	5400
5500	42.796	220.985	335.323	295.144	211.804	296.813	5500
5600	42.477	225.248	336.091	295.868	216.067	297.508	5600
5700	42.144	229.479	336.840	296.581	220.298	298.191	5700
5800	41.796	233.676	337.570	297.281	224.495	298.864	5800
5900	41.436	237.838	338.281	297.970	228.657	299.526	5900
6000	41.068	241.963	338.974	298.647	232.782	300.177	6000

TABLE III.12. - SELECTED THERMODYNAMIC FUNCTIONS FOR Co(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.771	INFINITE	0
	100	13.909	0.522	7.681	2.461	-4.249	50.171	100
	150	19.626	1.377	14.221	5.041	-3.394	36.848	150
	200	22.226	2.431	20.588	8.433	-2.340	32.288	200
	250	23.984	3.587	25.738	11.390	-1.184	30.474	250
	298.15	24.802	4.771	30.067	14.065	0.000	30.067	298.15
	300	24.833	4.817	30.221	14.164	0.046	30.068	300
	350	25.682	6.080	34.113	16.742	1.309	30.373	350
	400	26.527	7.385	37.597	19.135	2.614	31.062	400
	450	27.390	8.733	40.772	21.365	3.962	31.968	450
	500	28.200	10.123	43.700	23.454	5.352	32.996	500
	550	28.943	11.552	46.423	25.419	6.781	34.094	550
	600	29.665	13.017	48.973	27.278	8.246	35.230	600
	700	31.045	16.053	53.650	30.717	11.282	37.533	700
α	700.10	31.047	16.056	53.654	30.721	11.285	37.535	700.10
β	700.10	30.583	16.508	54.300	30.721	11.737	37.535	700.10
	800	32.426	19.654	58.497	33.930	14.883	39.893	800
	900	34.518	22.998	62.433	36.880	18.227	42.181	900
	1000	36.987	26.570	66.194	39.624	21.799	44.395	1000
	1100	39.832	30.406	69.849	42.207	25.635	46.544	1100
	1200	43.221	34.542	73.445	44.660	29.771	48.636	1200
	1300	48.660	39.125	77.111	47.015	34.354	50.685	1300
[a]β	1394	54.978	43.986	80.719	49.165	39.215	52.588	1394
β	1394	54.978	43.986	80.719	49.165	39.215	52.588	1394
	1400	44.225	44.282	80.930	49.300	39.511	52.708	1400
	1500	39.748	48.430	83.794	51.507	43.659	54.688	1500
	1600	38.284	52.323	86.307	53.605	47.552	56.587	1600
	1700	37.782	56.118	88.608	55.597	51.347	58.404	1700
β	1768	37.990	58.692	90.092	56.895	53.921	59.594	1768
ℓ	1768	40.501	74.884	99.251	56.895	70.113	59.594	1768
	1800	40.501	76.180	99.977	57.655	71.409	60.305	1800
	1900	40.501	80.230	102.167	59.941	75.459	62.452	1900
	2000	40.501	84.280	104.245	62.104	79.509	64.490	2000
	2100	40.501	88.331	106.221	64.158	83.560	66.430	2100
	2200	40.501	92.381	108.105	66.113	87.610	68.282	2200
	2300	40.501	96.431	109.905	67.979	91.660	70.053	2300
	2400	40.501	100.481	111.629	69.762	95.710	71.750	2400
	2500	40.501	104.531	113.282	71.470	99.760	73.378	2500
	2600	40.501	108.581	114.871	73.109	103.810	74.944	2600
	2700	40.501	112.631	116.399	74.684	107.860	76.451	2700
	2800	40.501	116.681	117.872	76.200	111.910	77.904	2800
	2900	40.501	120.731	119.293	77.662	115.960	79.307	2900
	3000	40.501	124.781	120.666	79.072	120.010	80.663	3000
	3100	40.501	128.832	121.994	80.436	124.061	81.975	3100
	3200	40.501	132.882	123.280	81.755	128.111	83.246	3200
	3300	40.501	136.932	124.526	83.032	132.161	84.478	3300
	3400	40.501	140.982	125.735	84.270	136.211	85.673	3400
	3500	40.501	145.032	126.909	85.472	140.261	86.835	3500
	3600	40.501	149.082	128.050	86.639	144.311	87.964	3600
	3700	40.501	153.132	129.160	87.773	148.361	89.063	3700
	3800	40.501	157.182	130.240	88.876	152.411	90.132	3800
	3900	40.501	161.232	131.292	89.951	156.461	91.174	3900
	4000	40.501	165.282	132.318	90.997	160.511	92.190	4000
	4100	40.501	169.333	133.318	92.017	164.562	93.181	4100
	4200	40.501	173.383	134.294	93.012	168.612	94.148	4200
	4300	40.501	177.433	135.247	93.983	172.662	95.093	4300
	4400	40.501	181.483	136.178	94.932	176.712	96.016	4400
	4500	40.501	185.533	137.088	95.858	180.762	96.919	4500
	4600	40.501	189.583	137.978	96.764	184.812	97.802	4600
	4700	40.501	193.633	138.849	97.651	188.862	98.666	4700
	4800	40.501	197.683	139.702	98.518	192.912	99.512	4800
	4900	40.501	201.733	140.537	99.367	196.962	100.341	4900
	5000	40.501	205.783	141.355	100.198	201.012	101.153	5000
	5100	40.501	209.834	142.157	101.013	205.063	101.949	5100
	5200	40.501	213.884	142.944	101.812	209.113	102.730	5200
	5300	40.501	217.934	143.715	102.596	213.163	103.496	5300
	5400	40.501	221.984	144.472	103.364	217.213	104.248	5400
	5500	40.501	226.034	145.215	104.118	221.263	104.986	5500
	5600	40.501	230.084	145.945	104.859	225.313	105.711	5600
	5700	40.501	234.134	146.662	105.586	229.363	106.423	5700
	5800	40.501	238.184	147.366	106.300	233.413	107.123	5800
	5900	40.501	242.234	148.059	107.002	237.463	107.811	5900
	6000	40.501	246.284	148.739	107.692	241.513	108.487	6000

[a]Lambda maximum transition point at 1394 K.

TABLE III.13. - SELECTED THERMODYNAMIC FUNCTIONS FOR Cr(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.057	INFINITE	0
	100	9.963	0.311	4.286	1.176	-3.746	41.746	100
	150	16.351	0.983	9.645	3.092	-3.074	30.138	150
	200	19.860	1.895	14.869	5.394	-2.162	25.679	200
	250	22.298	2.955	19.590	7.770	-1.102	23.998	250
	298.15	23.434	4.057	23.618	10.011	0.000	23.618	298.15
	300	23.472	4.100	23.764	10.097	0.043	23.621	300
[a]cr	311.50	23.681	4.372	24.651	10.616	0.315	23.640	311.50
cr	311.50	23.681	4.373	24.654	10.616	0.316	23.640	311.50
	350	24.393	5.297	27.453	12.319	1.240	23.910	350
	400	25.230	6.538	30.765	14.420	2.481	24.562	400
	450	25.983	7.819	33.781	16.405	3.762	25.421	450
	500	26.631	9.135	36.553	18.283	5.078	26.397	500
	550	27.204	10.481	39.119	20.063	6.424	27.439	550
	600	27.719	11.854	41.508	21.751	7.797	28.513	600
	700	28.577	14.669	45.846	24.890	10.612	30.686	700
	800	29.434	17.568	49.715	27.755	13.511	32.826	800
	900	30.501	20.562	53.241	30.394	16.505	34.902	900
	1000	31.861	23.678	56.523	32.845	19.621	36.902	1000
	1100	33.472	26.944	59.634	35.139	22.887	38.828	1100
	1200	35.187	30.375	62.618	37.305	26.318	40.686	1200
	1300	37.116	33.990	65.511	39.365	29.933	42.486	1300
	1400	39.125	37.801	68.334	41.333	33.744	44.231	1400
	1500	41.200	41.817	71.104	43.226	37.760	45.931	1500
	1600	43.329	46.043	73.831	45.054	41.986	47.590	1600
	1700	45.501	50.484	76.523	46.827	46.427	49.213	1700
	1800	47.706	55.144	79.186	48.550	51.087	50.804	1800
	1900	49.944	60.027	81.825	50.232	55.970	52.367	1900
	2000	52.204	65.134	84.444	51.877	61.077	53.905	2000
	2100	54.488	70.468	87.046	53.490	66.411	55.422	2100
cr	2130	55.174	72.113	87.824	53.968	68.056	55.873	2130
ℓ	2130	39.330	92.615	97.449	53.968	88.558	55.873	2130
	2200	39.330	95.368	98.721	55.372	91.311	57.216	2200
	2300	39.330	99.301	100.469	57.295	95.244	59.059	2300
	2400	39.330	103.234	102.143	59.129	99.177	60.819	2400
	2500	39.330	107.167	103.749	60.882	103.110	62.505	2500
	2600	39.330	111.100	105.291	62.560	107.043	64.121	2600
	2700	39.330	115.033	106.775	64.171	110.976	65.673	2700
	2800	39.330	118.966	108.206	65.718	114.909	67.167	2800
	2900	39.330	122.899	109.586	67.207	118.842	68.606	2900
	3000	39.330	126.832	110.919	68.642	122.775	69.994	3000
	3100	39.330	130.765	112.209	70.027	126.708	71.335	3100
	3200	39.330	134.698	113.458	71.364	130.641	72.632	3200
	3300	39.330	138.631	114.668	72.658	134.574	73.888	3300
	3400	39.330	142.564	115.842	73.911	138.507	75.105	3400
	3500	39.330	146.497	116.982	75.126	142.440	76.285	3500
	3600	39.330	150.430	118.090	76.304	146.373	77.431	3600
	3700	39.330	154.363	119.168	77.448	150.306	78.544	3700
	3800	39.330	158.296	120.216	78.560	154.239	79.627	3800
	3900	39.330	162.229	121.238	79.641	158.172	80.681	3900
	4000	39.330	166.162	122.234	80.693	162.105	81.708	4000
	4100	39.330	170.095	123.205	81.718	166.038	82.708	4100
	4200	39.330	174.028	124.153	82.717	169.971	83.683	4200
	4300	39.330	177.961	125.078	83.692	173.904	84.635	4300
	4400	39.330	181.894	125.982	84.643	177.837	85.565	4400
	4500	39.330	185.827	126.866	85.571	181.770	86.473	4500
	4600	39.330	189.760	127.731	86.478	185.703	87.360	4600
	4700	39.330	193.693	128.577	87.365	189.636	88.228	4700
	4800	39.330	197.626	129.405	88.232	193.569	89.078	4800
	4900	39.330	201.559	130.215	89.081	197.502	89.909	4900
	5000	39.330	205.492	131.010	89.912	201.435	90.723	5000
	5100	39.330	209.425	131.789	90.725	205.368	91.521	5100
	5200	39.330	213.358	132.553	91.522	209.301	92.302	5200
	5300	39.330	217.291	133.302	92.303	213.234	93.069	5300
	5400	39.330	221.224	134.037	93.070	217.167	93.821	5400
	5500	39.330	225.157	134.759	93.821	221.100	94.559	5500
	5600	39.330	229.090	135.467	94.558	225.033	95.283	5600
	5700	39.330	233.023	136.163	95.282	228.966	95.994	5700
	5800	39.330	236.956	136.847	95.993	232.899	96.692	5800
	5900	39.330	240.889	137.520	96.691	236.832	97.379	5900
	6000	39.330	244.822	138.181	97.377	240.765	98.053	6000

[a]Maximum lambda transition point at 311.5 K.

TABLE III.14. - SELECTED THERMODYNAMIC FUNCTIONS FOR Cs(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.711	INFINITE	0
	100	25.820	2.150	54.978	33.478	-5.561	110.588	100
	200	27.790	4.829	73.475	49.330	-2.882	87.885	200
	298.15	32.210	7.711	85.230	59.367	0.000	85.230	298.15
	300	32.379	7.771	85.430	59.527	0.060	85.230	300
cr	301.59	32.525	7.822	85.601	59.665	0.111	85.233	301.59
ℓ	301.59	32.635	9.918	92.551	59.665	2.207	85.233	301.59
	400	32.024	13.108	101.708	68.938	5.397	88.215	400
	500	30.955	16.257	108.740	76.226	8.546	91.648	500
	600	30.001	19.303	114.296	82.124	11.592	94.976	600
	700	29.361	22.268	118.868	87.057	14.557	98.072	700
	800	29.115	25.188	122.768	91.283	17.477	100.922	800
	900	29.304	28.106	126.204	94.975	20.395	103.543	900
	1000	29.948	31.064	129.320	98.256	23.353	105.967	1000
	1100	31.059	34.111	132.223	101.213	26.400	108.223	1100
	1200	32.643	37.292	134.990	103.913	29.581	110.339	1200
	1300	34.707	40.655	137.681	106.408	32.944	112.339	1300
	1400	37.251	44.249	140.343	108.737	36.538	114.244	1400
	1500	40.278	48.122	143.014	110.933	40.411	116.073	1500
	1600	43.791	52.321	145.723	113.022	44.610	117.842	1600
	1700	47.788	56.896	148.495	115.027	49.185	119.563	1700
	1800	52.273	61.895	151.351	116.965	54.184	121.249	1800
	1900	57.244	67.367	154.308	118.852	59.656	122.910	1900
	2000	62.702	73.360	157.381	120.701	65.649	124.556	2000

TABLE III.15. - SELECTED THERMODYNAMIC FUNCTIONS FOR Cu(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.004	INFINITE	0
	100	16.010	0.669	10.030	3.340	-4.335	53.380	100
	200	22.630	2.682	23.730	10.320	-2.322	35.340	200
	298.15	24.440	5.004	33.150	16.367	0.000	33.150	298.15
	300	24.460	5.049	33.301	16.471	0.045	33.151	300
	400	25.339	7.542	40.467	21.612	2.538	34.122	400
	500	25.966	10.109	46.192	25.974	5.105	35.982	500
	600	26.479	12.732	50.973	29.753	7.728	38.093	600
	700	26.953	15.403	55.090	33.086	10.399	40.234	700
	800	27.448	18.123	58.721	36.067	13.119	42.322	800
	900	28.014	20.895	61.986	38.769	15.891	44.329	900
	1000	28.700	23.730	64.971	41.241	18.726	46.245	1000
	1100	29.553	26.641	67.745	43.526	21.637	48.075	1100
	1200	30.617	29.648	70.361	45.654	24.644	49.824	1200
	1300	31.940	32.773	72.862	47.652	27.769	51.501	1300
cr	1358	32.844	34.651	74.275	48.759	29.647	52.444	1358
ℓ	1358	32.800	47.791	83.951	48.759	42.787	52.444	1358
	1400	32.800	49.169	84.950	49.830	44.165	53.404	1400
	1500	32.800	52.449	87.213	52.247	47.445	55.583	1500
	1600	32.800	55.729	89.330	54.500	50.725	57.627	1600
	1700	32.800	59.009	91.318	56.608	54.005	59.551	1700
	1800	32.800	62.289	93.193	58.588	57.285	61.368	1800
	1900	32.800	65.569	94.967	60.457	60.565	63.091	1900
	2000	32.800	68.849	96.649	62.225	63.845	64.727	2000
	2100	32.800	72.129	98.249	63.902	67.125	66.285	2100
	2200	32.800	75.409	99.775	65.499	70.405	67.773	2200
	2300	32.800	78.689	101.233	67.021	73.685	69.196	2300
	2400	32.800	81.969	102.629	68.476	76.965	70.561	2400
	2500	32.800	85.249	103.968	69.869	80.245	71.870	2500
	2600	32.800	88.529	105.255	71.205	83.525	73.130	2600
	2700	32.800	91.809	106.493	72.489	86.805	74.343	2700
	2800	32.800	95.089	107.685	73.725	90.085	75.512	2800
	2900	32.800	98.369	108.836	74.916	93.365	76.642	2900
	3000	32.800	101.649	109.948	76.065	96.645	77.733	3000
	3100	32.800	104.929	111.024	77.176	99.925	78.790	3100
	3200	32.800	108.209	112.065	78.250	103.205	79.814	3200
	3300	32.800	111.489	113.075	79.290	106.485	80.806	3300
	3400	32.800	114.769	114.054	80.298	109.765	81.770	3400
	3500	32.800	118.049	115.004	81.276	113.045	82.706	3500
	3600	32.800	121.329	115.928	82.226	116.325	83.616	3600
	3700	32.800	124.609	116.827	83.149	119.605	84.502	3700
	3800	32.800	127.889	117.702	84.047	122.885	85.364	3800
	3900	32.800	131.169	118.554	84.921	126.165	86.204	3900
	4000	32.800	134.449	119.384	85.772	129.445	87.023	4000
	4100	32.800	137.729	120.194	86.602	132.725	87.822	4100
	4200	32.800	141.009	120.985	87.411	136.005	88.603	4200
	4300	32.800	144.289	121.756	88.201	139.285	89.365	4300
	4400	32.800	147.569	122.510	88.972	142.565	90.109	4400
	4500	32.800	150.849	123.248	89.726	145.845	90.838	4500
	4600	32.800	154.129	123.968	90.462	149.125	91.550	4600
	4700	32.800	157.409	124.674	91.183	152.405	92.247	4700
	4800	32.800	160.689	125.364	91.888	155.685	92.930	4800
	4900	32.800	163.969	126.041	92.578	158.965	93.599	4900
	5000	32.800	167.249	126.703	93.254	162.245	94.254	5000
	5100	32.800	170.529	127.353	93.916	165.525	94.897	5100
	5200	32.800	173.809	127.990	94.565	168.805	95.527	5200
	5300	32.800	177.089	128.615	95.202	172.085	96.146	5300
	5400	32.800	180.369	129.228	95.826	175.365	96.753	5400
	5500	32.800	183.649	129.830	96.439	178.645	97.349	5500
	5600	32.800	186.929	130.421	97.040	181.925	97.934	5600
	5700	32.800	190.209	131.001	97.631	185.205	98.509	5700
	5800	32.800	193.489	131.572	98.211	188.485	99.074	5800
	5900	32.800	196.769	132.132	98.782	191.765	99.630	5900
	6000	32.800	200.049	132.684	99.342	195.045	100.176	6000

TABLE III.16. - SELECTED THERMODYNAMIC FUNCTIONS FOR D_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.569	INFINITE	0
100	30.318	2.750	112.786	85.286	-5.819	170.977	100
200	29.205	5.704	133.305	104.784	-2.865	147.630	200
298.15	29.195	8.569	144.960	116.219	0.000	144.960	298.15
300	29.196	8.623	145.140	116.396	0.054	144.960	300
400	29.244	11.545	153.545	124.682	2.976	146.105	400
500	29.368	14.474	160.082	131.134	5.905	148.272	500
600	29.622	17.423	165.457	136.418	8.854	150.700	600
700	30.011	20.403	170.050	140.903	11.834	153.144	700
800	30.505	23.428	174.089	144.804	14.859	155.515	800
900	31.061	26.507	177.714	148.262	17.938	157.783	900
1000	31.641	29.641	181.016	151.375	21.072	159.944	1000
1100	32.216	32.834	184.059	154.210	24.265	162.000	1100
1200	32.768	36.084	186.886	156.816	27.515	163.957	1200
1300	33.289	39.387	189.530	159.232	30.818	165.824	1300
1400	33.773	42.742	192.015	161.486	34.172	167.606	1400
1500	34.221	46.141	194.360	163.600	37.571	169.313	1500
1600	34.634	49.583	196.582	165.593	41.013	170.949	1600
1700	35.014	53.068	198.694	167.478	44.499	172.519	1700
1800	35.364	56.586	200.705	169.269	48.017	174.030	1800
1900	35.688	60.140	202.626	170.974	51.571	175.484	1900
2000	35.987	63.723	204.464	172.603	55.154	176.888	2000
2100	36.265	67.335	206.227	174.163	58.766	178.244	2100
2200	36.525	70.975	207.921	175.659	62.406	179.554	2200
2300	36.769	74.641	209.550	177.097	66.072	180.823	2300
2400	36.999	78.330	211.120	178.482	69.761	182.053	2400
2500	37.216	82.038	212.634	179.818	73.469	183.246	2500
2600	37.423	85.772	214.098	181.108	77.203	184.404	2600
2700	37.620	89.522	215.514	182.357	80.953	185.531	2700
2800	37.810	93.297	216.886	183.565	84.728	186.626	2800
2900	37.993	97.087	218.216	184.737	88.518	187.692	2900
3000	38.171	100.894	219.507	185.875	92.325	188.732	3000
3100	38.344	104.719	220.761	186.980	96.150	189.744	3100
3200	38.513	108.561	221.981	188.055	99.992	190.733	3200
3300	38.679	112.422	223.169	189.101	103.853	191.698	3300
3400	38.843	116.298	224.326	190.120	107.729	192.641	3400
3500	39.005	120.188	225.454	191.114	111.619	193.562	3500
3600	39.165	124.100	226.556	192.083	115.531	194.464	3600
3700	39.324	128.026	227.631	193.029	119.456	195.345	3700
3800	39.481	131.965	228.681	193.953	123.395	196.208	3800
3900	39.639	135.921	229.709	194.857	127.352	197.055	3900
4000	39.795	139.894	230.715	195.741	131.325	197.884	4000
4100	39.950	143.879	231.699	196.606	135.310	198.696	4100
4200	40.105	147.884	232.664	197.453	139.315	199.494	4200
4300	40.258	151.900	233.609	198.283	143.331	200.276	4300
4400	40.410	155.934	234.536	199.096	147.365	201.044	4400
4500	40.560	159.982	235.446	199.894	151.413	201.799	4500
4600	40.709	164.043	236.339	200.677	155.474	202.540	4600
4700	40.854	168.121	237.216	201.445	159.552	203.269	4700
4800	40.997	172.216	238.078	202.200	163.647	203.985	4800
4900	41.135	176.324	238.925	202.940	167.755	204.689	4900
5000	41.270	180.442	239.757	203.668	171.873	205.382	5000
5100	41.400	184.581	240.576	204.383	176.012	206.064	5100
5200	41.525	188.726	241.381	205.087	180.157	206.735	5200
5300	41.646	192.885	242.173	205.779	184.316	207.396	5300
5400	41.758	197.048	242.952	206.461	188.479	208.048	5400
5500	41.864	201.236	243.720	207.131	192.667	208.690	5500
5600	41.963	205.427	244.475	207.791	196.858	209.322	5600
5700	42.054	209.626	245.218	208.442	201.056	209.945	5700
5800	42.137	213.837	245.951	209.083	205.267	210.560	5800
5900	42.211	218.055	246.672	209.714	209.486	211.166	5900
6000	42.276	222.273	247.381	210.336	213.704	211.764	6000
6200	42.379	230.742	248.769	211.553	222.173	212.935	6200
6400	42.443	239.229	250.116	212.736	230.660	214.075	6400
6600	42.467	247.721	251.423	213.890	239.152	215.188	6600
6800	42.450	256.213	252.690	215.012	247.644	216.272	6800
7000	42.395	264.694	253.920	216.107	256.125	217.331	7000
7200	42.300	273.164	255.113	217.174	264.595	218.364	7200
7400	42.168	281.610	256.270	218.215	273.041	219.373	7400
7600	42.001	290.027	257.392	219.231	281.458	220.358	7600
7800	41.801	298.409	258.481	220.224	289.839	221.322	7800
8000	41.570	306.748	259.536	221.193	298.179	222.264	8000

TABLE III.16. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.312	315.040	260.560	222.141	306.471	223.186	8200
8400	41.029	323.270	261.552	223.068	314.701	224.088	8400
8600	40.725	331.448	262.514	223.974	322.879	224.970	8600
8800	40.401	339.561	263.446	224.860	330.992	225.833	8800
9000	40.061	347.602	264.350	225.728	339.033	226.680	9000
9200	39.708	355.584	265.227	226.577	347.015	227.508	9200
9400	39.343	363.484	266.077	227.409	354.915	228.320	9400
9600	38.969	371.322	266.902	228.223	362.753	229.115	9600
9800	38.589	379.079	267.701	229.020	370.509	229.894	9800
10000	38.204	386.755	268.477	229.802	378.186	230.659	10000
10500	37.234	405.610	270.317	231.688	397.041	232.504	10500
11000	36.270	423.989	272.027	233.483	415.420	234.262	11000
11500	35.329	441.893	273.619	235.194	433.324	235.939	11500
12000	34.424	459.330	275.103	236.826	450.760	237.540	12000
12500	33.562	476.331	276.491	238.385	467.762	239.070	12500
13000	32.748	492.901	277.791	239.876	484.332	240.535	13000
13500	31.985	509.078	279.012	241.303	500.509	241.938	13500
14000	31.272	524.880	280.162	242.671	516.311	243.283	14000
14500	30.608	540.348	281.248	243.983	531.779	244.574	14500
15000	29.991	555.502	282.275	245.242	546.933	245.813	15000
15500	29.420	570.360	283.249	246.452	561.791	247.005	15500
16000	28.890	584.935	284.175	247.617	576.366	248.153	16000
16500	28.401	599.254	285.056	248.738	590.685	249.257	16500
17000	27.947	613.332	285.897	249.819	604.763	250.323	17000
17500	27.528	627.208	286.701	250.861	618.638	251.351	17500
18000	27.140	640.862	287.471	251.868	632.293	252.344	18000
18500	26.781	654.354	288.210	252.840	645.785	253.303	18500
19000	26.448	667.668	288.920	253.780	659.099	254.231	19000
19500	26.140	680.812	289.603	254.690	672.243	255.129	19500
20000	25.853	693.808	290.261	255.571	685.239	256.000	20000

TABLE III.17. - SELECTED THERMODYNAMIC FUNCTIONS FOR Electron Gas

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	12.679	-8.107	-2.040	22.880	200
298.15	20.786	6.197	20.979	0.193	0.000	20.979	298.15
300	20.786	6.236	21.108	0.321	0.038	20.979	300
400	20.786	8.315	27.087	6.301	2.117	21.795	400
500	20.786	10.393	31.726	10.939	4.196	23.334	500
600	20.786	12.472	35.516	14.729	6.274	25.058	600
700	20.786	14.550	38.720	17.933	8.353	26.787	700
800	20.786	16.629	41.495	20.709	10.432	28.456	800
900	20.786	18.708	43.944	23.157	12.510	30.043	900
1000	20.786	20.786	46.134	25.347	14.589	31.545	1000
1100	20.786	22.865	48.115	27.329	16.667	32.963	1100
1200	20.786	24.944	49.923	29.137	18.746	34.302	1200
1300	20.786	27.022	51.587	30.801	20.825	35.568	1300
1400	20.786	29.101	53.128	32.341	22.903	36.768	1400
1500	20.786	31.179	54.562	33.776	24.982	37.907	1500
1600	20.786	33.258	55.903	35.117	27.061	38.990	1600
1700	20.786	35.337	57.163	36.377	29.139	40.023	1700
1800	20.786	37.415	58.352	37.565	31.218	41.008	1800
1900	20.786	39.494	59.475	38.689	33.296	41.951	1900
2000	20.786	41.573	60.542	39.755	35.375	42.854	2000
2100	20.786	43.651	61.556	40.770	37.454	43.721	2100
2200	20.786	45.730	62.523	41.737	39.532	44.554	2200
2300	20.786	47.808	63.447	42.660	41.611	45.355	2300
2400	20.786	49.887	64.331	43.545	43.690	46.127	2400
2500	20.786	51.966	65.180	44.394	45.768	46.873	2500
2600	20.786	54.044	65.995	45.209	47.847	47.593	2600
2700	20.786	56.123	66.780	45.993	49.926	48.289	2700
2800	20.786	58.202	67.536	46.749	52.004	48.963	2800
2900	20.786	60.280	68.265	47.479	54.083	49.616	2900
3000	20.786	62.359	68.970	48.183	56.161	50.249	3000
3100	20.786	64.437	69.651	48.865	58.240	50.864	3100
3200	20.786	66.516	70.311	49.525	60.319	51.462	3200
3300	20.786	68.595	70.951	50.165	62.397	52.043	3300
3400	20.786	70.673	71.571	50.785	64.476	52.608	3400
3500	20.786	72.752	72.174	51.388	66.555	53.158	3500
3600	20.786	74.831	72.760	51.973	68.633	53.695	3600
3700	20.786	76.909	73.329	52.543	70.712	54.218	3700
3800	20.786	78.988	73.883	53.097	72.790	54.728	3800
3900	20.786	81.066	74.423	53.637	74.869	55.226	3900
4000	20.786	83.145	74.950	54.163	76.948	55.713	4000
4100	20.786	85.224	75.463	54.677	79.026	56.188	4100
4200	20.786	87.302	75.964	55.177	81.105	56.653	4200
4300	20.786	89.381	76.453	55.667	83.184	57.108	4300
4400	20.786	91.460	76.931	56.144	85.262	57.553	4400
4500	20.786	93.538	77.398	56.612	87.341	57.989	4500
4600	20.786	95.617	77.855	57.068	89.419	58.416	4600
4700	20.786	97.695	78.302	57.515	91.498	58.834	4700
4800	20.786	99.774	78.739	57.953	93.577	59.244	4800
4900	20.786	101.853	79.168	58.382	95.655	59.646	4900
5000	20.786	103.931	79.588	58.802	97.734	60.041	5000
5100	20.786	106.010	80.000	59.213	99.813	60.428	5100
5200	20.786	108.089	80.403	59.617	101.891	60.809	5200
5300	20.786	110.167	80.799	60.013	103.970	61.182	5300
5400	20.786	112.246	81.188	60.401	106.048	61.549	5400
5500	20.786	114.325	81.569	60.783	108.127	61.910	5500
5600	20.786	116.403	81.944	61.157	110.206	62.264	5600
5700	20.786	118.482	82.311	61.525	112.284	62.612	5700
5800	20.786	120.560	82.673	61.887	114.363	62.955	5800
5900	20.786	122.639	83.028	62.242	116.442	63.292	5900
6000	20.786	124.718	83.378	62.591	118.520	63.624	6000
6200	20.786	128.875	84.059	63.273	122.677	64.273	6200
6400	20.786	133.032	84.719	63.933	126.835	64.901	6400
6600	20.786	137.189	85.359	64.573	130.992	65.512	6600
6800	20.786	141.347	85.979	65.193	135.149	66.104	6800
7000	20.786	145.504	86.582	65.796	139.306	66.681	7000
7200	20.786	149.661	87.167	66.381	143.464	67.242	7200
7400	20.786	153.818	87.737	66.951	147.621	67.788	7400
7600	20.786	157.976	88.291	67.505	151.778	68.321	7600
7800	20.786	162.133	88.831	68.045	155.936	68.840	7800
8000	20.786	166.290	89.358	68.571	160.093	69.346	8000

TABLE III.17. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.786	170.447	89.871	69.085	164.250	69.840	8200
8400	20.786	174.605	90.372	69.585	168.407	70.323	8400
8600	20.786	178.762	90.861	70.075	172.565	70.795	8600
8800	20.786	182.919	91.339	70.552	176.722	71.257	8800
9000	20.786	187.076	91.806	71.020	180.879	71.708	9000
9200	20.786	191.234	92.263	71.476	185.036	72.150	9200
9400	20.786	195.391	92.710	71.923	189.194	72.583	9400
9600	20.786	199.548	93.147	72.361	193.351	73.007	9600
9800	20.786	203.705	93.576	72.790	197.508	73.422	9800
10000	20.786	207.863	93.996	73.210	201.665	73.829	10000
10500	20.786	218.256	95.010	74.224	212.058	74.814	10500
11000	20.786	228.649	95.977	75.191	222.452	75.754	11000
11500	20.786	239.042	96.901	76.115	232.845	76.654	11500
12000	20.786	249.435	97.786	76.999	243.238	77.516	12000
12500	20.786	259.828	98.634	77.848	253.631	78.344	12500
13000	20.786	270.222	99.449	78.663	264.024	79.140	13000
13500	20.786	280.615	100.234	79.448	274.417	79.907	13500
14000	20.786	291.008	100.990	80.204	284.810	80.646	14000
14500	20.786	301.401	101.719	80.933	295.204	81.360	14500
15000	20.786	311.794	102.424	81.638	305.597	82.051	15000
15500	20.786	322.187	103.106	82.319	315.990	82.719	15500
16000	20.786	332.580	103.765	82.979	326.383	83.367	16000
16500	20.786	342.974	104.405	83.619	336.776	83.994	16500
17000	20.786	353.367	105.026	84.239	347.169	84.604	17000
17500	20.786	363.760	105.628	84.842	357.562	85.196	17500
18000	20.786	374.153	106.214	85.427	367.956	85.772	18000
18500	20.786	384.546	106.783	85.997	378.349	86.332	18500
19000	20.786	394.939	107.338	86.551	388.742	86.878	19000
19500	20.786	405.332	107.878	87.091	399.135	87.409	19500
20000	20.786	415.725	108.404	87.618	409.528	87.927	20000

TABLE III.18. - SELECTED THERMODYNAMIC FUNCTIONS FOR F_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.825	INFINITE	0
100	29.114	2.907	170.372	141.302	-5.918	229.553	100
200	29.686	5.836	190.654	161.474	-2.989	205.599	200
298.15	31.304	8.825	202.792	173.193	0.000	202.792	298.15
300	31.337	8.883	202.986	173.376	0.058	202.793	300
400	32.995	12.102	212.237	181.981	3.277	204.044	400
500	34.258	15.468	219.742	188.805	6.643	206.455	500
600	35.171	18.942	226.074	194.503	10.117	209.212	600
700	35.839	22.494	231.548	199.413	13.669	212.020	700
800	36.343	26.105	236.368	203.736	17.280	214.768	800
900	36.740	29.759	240.672	207.606	20.934	217.412	900
1000	37.065	33.450	244.561	211.111	24.625	219.936	1000
1100	37.342	37.171	248.107	214.315	28.346	222.338	1100
1200	37.588	40.918	251.366	217.267	32.093	224.622	1200
1300	37.811	44.689	254.384	220.008	35.863	226.797	1300
1400	38.019	48.480	257.194	222.566	39.654	228.869	1400
1500	38.214	52.292	259.824	224.963	43.467	230.846	1500
1600	38.396	56.123	262.296	227.219	47.298	232.735	1600
1700	38.563	59.971	264.629	229.352	51.146	234.544	1700
1800	38.711	63.835	266.837	231.373	55.010	236.276	1800
1900	38.836	67.712	268.934	233.296	58.887	237.941	1900
2000	38.935	71.601	270.928	235.128	62.776	239.540	2000
2100	39.002	75.498	272.830	236.879	66.673	241.081	2100
2200	39.036	79.400	274.645	238.554	70.575	242.566	2200
2300	39.033	83.304	276.380	240.161	74.479	243.998	2300
2400	38.992	87.206	278.041	241.705	78.381	245.383	2400
2500	38.914	91.101	279.631	243.191	82.276	246.721	2500
2600	38.799	94.987	281.155	244.622	86.162	248.016	2600
2700	38.648	98.860	282.617	246.003	90.035	249.271	2700
2800	38.464	102.716	284.019	247.335	93.891	250.487	2800
2900	38.249	106.552	285.365	248.623	97.727	251.666	2900
3000	38.006	110.365	286.658	249.870	101.540	252.812	3000
3100	37.738	114.152	287.900	251.077	105.327	253.924	3100
3200	37.450	117.912	289.093	252.246	109.087	255.004	3200
3300	37.143	121.641	290.241	253.380	112.816	256.055	3300
3400	36.821	125.341	291.346	254.481	116.515	257.076	3400
3500	36.487	129.006	292.409	255.550	120.180	258.071	3500
3600	36.144	132.638	293.432	256.588	123.812	259.039	3600
3700	35.795	136.235	294.417	257.596	127.410	259.982	3700
3800	35.441	139.797	295.367	258.578	130.972	260.900	3800
3900	35.084	143.323	296.283	259.533	134.498	261.796	3900
4000	34.728	146.813	297.167	260.463	137.988	262.670	4000
4100	34.372	150.268	298.020	261.369	141.443	263.521	4100
4200	34.019	153.688	298.844	262.251	144.863	264.352	4200
4300	33.670	157.072	299.640	263.111	148.247	265.164	4300
4400	33.326	160.422	300.410	263.950	151.597	265.956	4400
4500	32.987	163.738	301.156	264.769	154.913	266.731	4500
4600	32.654	167.020	301.877	265.568	158.195	267.486	4600
4700	32.329	170.269	302.576	266.348	161.444	268.226	4700
4800	32.011	173.486	303.253	267.110	164.661	268.948	4800
4900	31.700	176.671	303.910	267.854	167.846	269.655	4900
5000	31.398	179.826	304.547	268.581	171.001	270.346	5000
5100	31.103	182.951	305.166	269.293	174.126	271.023	5100
5200	30.817	186.047	305.767	269.988	177.222	271.685	5200
5300	30.538	189.114	306.352	270.670	180.289	272.335	5300
5400	30.268	192.155	306.920	271.335	183.330	272.970	5400
5500	30.007	195.168	307.473	271.988	186.343	273.592	5500
5600	29.753	198.156	308.011	272.626	189.331	274.202	5600
5700	29.507	201.119	308.536	273.252	192.294	274.800	5700
5800	29.269	204.058	309.047	273.864	195.233	275.386	5800
5900	29.038	206.973	309.545	274.464	198.148	275.960	5900
6000	28.815	209.867	310.031	275.053	201.041	276.524	6000

TABLE III.19. - SELECTED THERMODYNAMIC FUNCTIONS FOR Fe($\alpha,\gamma,\delta,\ell$)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.507	INFINITE	0
	100	12.101	0.423	6.065	1.835	-4.084	46.905	100
	150	18.110	1.192	12.221	4.274	-3.315	34.321	150
	200	21.588	2.192	17.949	6.989	-2.315	29.524	200
	250	23.742	3.330	23.018	9.698	-1.177	27.726	250
	298.15	25.094	4.507	27.321	12.204	0.000	27.321	298.15
	300	25.140	4.553	27.476	12.299	0.046	27.323	300
	350	26.287	5.840	31.439	14.753	1.333	27.630	350
	400	27.386	7.181	35.021	17.069	2.674	28.336	400
	450	28.518	8.579	38.312	19.248	4.072	29.263	450
	500	29.702	10.034	41.377	21.309	5.527	30.323	500
	550	30.850	11.548	44.261	23.265	7.041	31.459	550
	600	32.049	13.120	46.997	25.130	8.613	32.642	600
	700	34.602	16.446	52.119	28.625	11.939	35.063	700
	800	37.949	20.060	56.940	31.865	15.553	37.499	800
	900	43.095	24.089	61.679	34.913	19.582	39.921	900
	950	43.800	26.273	64.054	36.398	21.766	41.142	950
	1000	54.434	28.836	66.672	37.836	24.329	42.343	1000
	1030	72.572	30.531	68.341	38.699	26.024	43.075	1030
	1040	81.660	31.302	69.086	38.988	26.795	43.322	1040
	1041	82.670	31.384	69.165	39.017	26.877	43.347	1041
[a] α	1042	83.680	31.467	69.245	39.046	26.960	43.372	1042
α	1042	83.681	31.467	69.245	39.046	26.960	43.372	1042
	1100	46.401	34.479	72.062	40.717	29.972	44.815	1100
α	1184	41.422	38.126	75.260	43.059	33.619	46.866	1184
γ	1184	33.882	39.026	76.020	43.059	34.519	46.866	1184
	1200	34.016	39.569	76.476	43.502	35.062	47.258	1200
	1300	34.853	43.012	79.231	46.145	38.505	49.612	1300
	1400	35.690	46.540	81.845	48.602	42.033	51.821	1400
	1500	36.526	50.150	84.336	50.903	45.643	53.907	1500
	1600	37.363	53.845	86.720	53.067	49.338	55.884	1600
γ	1665	37.907	56.291	88.218	54.410	51.784	57.116	1665
δ	1665	41.112	57.128	88.721	54.410	52.621	57.116	1665
	1700	41.463	58.573	89.580	55.125	54.066	57.776	1700
	1800	42.468	62.770	91.978	57.106	58.263	59.610	1800
δ	1809	42.558	63.152	92.190	57.280	58.645	59.772	1809
ℓ	1809	46.024	76.959	99.823	57.280	72.452	59.772	1809
	1900	46.024	81.148	102.082	59.372	76.641	61.744	1900
	2000	46.024	85.750	104.442	61.567	81.243	63.821	2000
	2100	46.024	90.352	106.688	63.663	85.845	65.809	2100
	2200	46.024	94.955	108.829	65.668	90.448	67.716	2200
	2300	46.024	99.557	110.875	67.589	95.050	69.549	2300
	2400	46.024	104.160	112.833	69.434	99.653	71.312	2400
	2500	46.024	108.762	114.712	71.207	104.255	73.010	2500
	2600	46.024	113.364	116.517	72.916	108.857	74.649	2600
	2700	46.024	117.967	118.254	74.563	113.460	76.232	2700
	2800	46.024	122.569	119.928	76.153	118.062	77.763	2800
	2900	46.024	127.172	121.543	77.691	122.665	79.245	2900
	3000	46.024	131.774	123.103	79.179	127.267	80.681	3000
	3100	46.024	136.376	124.613	80.620	131.869	82.074	3100
	3200	46.024	140.979	126.074	82.018	136.472	83.426	3200
	3300	46.024	145.581	127.490	83.374	141.074	84.740	3300
	3400	46.024	150.184	128.864	84.692	145.677	86.018	3400
	3500	46.024	154.786	130.198	85.973	150.279	87.261	3500
	3600	46.024	159.388	131.495	87.220	154.881	88.472	3600
	3700	46.024	163.991	132.756	88.434	159.484	89.652	3700
	3800	46.024	168.593	133.983	89.616	164.086	90.802	3800
	3900	46.024	173.196	135.178	90.769	168.689	91.925	3900
	4000	46.024	177.798	136.344	91.894	173.291	93.021	4000
	4100	46.024	182.400	137.480	92.992	177.893	94.092	4100
	4200	46.024	187.003	138.589	94.065	182.496	95.138	4200
	4300	46.024	191.605	139.672	95.113	187.098	96.161	4300
	4400	46.024	196.208	140.730	96.138	191.701	97.162	4400
	4500	46.024	200.810	141.765	97.140	196.303	98.142	4500
	4600	46.024	205.412	142.776	98.121	200.905	99.101	4600
	4700	46.024	210.015	143.766	99.082	205.508	100.041	4700
	4800	46.024	214.617	144.735	100.023	210.110	100.962	4800
	4900	46.024	219.220	145.684	100.945	214.713	101.865	4900
	5000	46.024	223.822	146.614	101.849	219.315	102.751	5000

[a]Maximum lambda transition point at 1042 K.

TABLE III.19. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
5100	46.024	228.424	147.525	102.736	223.917	103.620	5100
5200	46.024	233.027	148.419	103.606	228.520	104.473	5200
5300	46.024	237.629	149.295	104.460	233.122	105.310	5300
5400	46.024	242.232	150.156	105.298	237.725	106.133	5400
5500	46.024	246.834	151.000	106.121	242.327	106.941	5500
5600	46.024	251.436	151.829	106.930	246.929	107.735	5600
5700	46.024	256.039	152.644	107.725	251.532	108.516	5700
5800	46.024	260.641	153.445	108.506	256.134	109.283	5800
5900	46.024	265.244	154.231	109.275	260.737	110.039	5900
6000	46.024	269.846	155.005	110.030	265.339	110.782	6000

TABLE III.20. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ge(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.636	INFINITE	0
	100	13.820	0.620	9.866	3.666	-4.016	50.030	100
	200	21.130	2.435	22.175	10.000	-2.201	33.182	200
	298.15	23.222	4.636	31.090	15.540	0.000	31.090	298.15
	300	23.249	4.679	31.234	15.636	0.043	31.090	300
	350	23.861	5.858	34.866	18.129	1.222	31.376	350
	400	24.310	7.063	38.083	20.426	2.426	32.017	400
	450	24.665	8.287	40.968	22.551	3.651	32.854	450
	500	24.962	9.528	43.582	24.526	4.892	33.798	500
	600	25.452	12.050	48.178	28.095	7.414	35.822	600
	700	25.867	14.616	52.133	31.253	9.980	37.876	700
	800	26.240	17.222	55.612	34.085	12.586	39.880	800
	900	26.591	19.864	58.723	36.653	15.227	41.804	900
	1000	26.926	22.540	61.542	39.003	17.903	43.639	1000
	1100	27.252	25.249	64.124	41.171	20.612	45.386	1100
	1200	27.571	27.990	66.509	43.184	23.353	47.048	1200
cr	1211.40	27.608	28.304	66.770	43.405	23.668	47.232	1211.40
ℓ	1211.40	27.600	65.334	97.338	43.405	60.698	47.232	1211.40
	1300	27.600	67.780	99.286	47.148	63.143	50.714	1300
	1400	27.600	70.540	101.331	50.946	65.903	54.258	1400
	1500	27.600	73.300	103.236	54.369	68.663	57.460	1500
	1600	27.600	76.060	105.017	57.480	71.423	60.377	1600
	1700	27.600	78.820	106.690	60.326	74.183	63.053	1700
	1800	27.600	81.580	108.268	62.946	76.943	65.521	1800
	1900	27.600	84.340	109.760	65.371	79.703	67.811	1900
	2000	27.600	87.100	111.176	67.626	82.463	69.944	2000
	2100	27.600	89.860	112.522	69.732	85.223	71.940	2100
	2200	27.600	92.620	113.806	71.706	87.983	73.814	2200
	2300	27.600	95.380	115.033	73.564	90.743	75.579	2300
	2400	27.600	98.140	116.208	75.316	93.503	77.248	2400
	2500	27.600	100.900	117.334	76.975	96.263	78.829	2500
	2600	27.600	103.660	118.417	78.548	99.023	80.331	2600
	2700	27.600	106.420	119.458	80.044	101.783	81.761	2700
	2800	27.600	109.180	120.462	81.470	104.543	83.125	2800
	2900	27.600	111.940	121.431	82.831	107.303	84.430	2900
	3000	27.600	114.700	122.366	84.133	110.063	85.679	3000
	3100	27.600	117.460	123.271	85.381	112.823	86.877	3100
	3200	27.600	120.220	124.148	86.579	115.583	88.028	3200
	3300	27.600	122.980	124.997	87.730	118.343	89.135	3300
	3400	27.600	125.740	125.821	88.839	121.103	90.202	3400
	3500	27.600	128.500	126.621	89.907	123.863	91.232	3500
	3600	27.600	131.260	127.398	90.938	126.623	92.225	3600
	3700	27.600	134.020	128.155	91.933	129.383	93.186	3700
	3800	27.600	136.780	128.891	92.896	132.143	94.116	3800
	3900	27.600	139.540	129.608	93.828	134.903	95.017	3900
	4000	27.600	142.300	130.306	94.732	137.663	95.891	4000
	4100	27.600	145.060	130.988	95.608	140.423	96.738	4100
	4200	27.600	147.820	131.653	96.458	143.183	97.562	4200
	4300	27.600	150.580	132.303	97.284	145.943	98.362	4300
	4400	27.600	153.340	132.937	98.087	148.703	99.141	4400
	4500	27.600	156.100	133.557	98.868	151.463	99.899	4500
	4600	27.600	158.860	134.164	99.629	154.223	100.637	4600
	4700	27.600	161.620	134.757	100.370	156.983	101.357	4700
	4800	27.600	164.380	135.339	101.093	159.743	102.059	4800
	4900	27.600	167.140	135.908	101.798	162.503	102.744	4900
	5000	27.600	169.900	136.465	102.485	165.263	103.413	5000
	5100	27.600	172.660	137.012	103.157	168.023	104.066	5100
	5200	27.600	175.420	137.548	103.813	170.783	104.705	5200
	5300	27.600	178.180	138.073	104.455	173.543	105.329	5300
	5400	27.600	180.940	138.589	105.082	176.303	105.941	5400
	5500	27.600	183.700	139.096	105.696	179.063	106.539	5500
	5600	27.600	186.460	139.593	106.297	181.823	107.125	5600
	5700	27.600	189.220	140.082	106.885	184.583	107.699	5700
	5800	27.600	191.980	140.562	107.462	187.343	108.261	5800
	5900	27.600	194.740	141.033	108.027	190.103	108.813	5900
	6000	27.600	197.500	141.497	108.581	192.863	109.353	6000

TABLE III.21. - SELECTED THERMODYNAMIC FUNCTIONS FOR H_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.468	INFINITE	0
50	37.970	1.365	77.632	50.332	-7.103	219.694	50
100	28.155	2.999	100.727	70.736	-5.469	155.417	100
150	26.556	4.345	111.666	82.699	-4.123	139.153	150
200	27.447	5.693	119.412	90.947	-2.775	133.287	200
250	28.344	7.089	125.642	97.286	-1.379	131.158	250
298.15	28.836	8.468	130.681	102.279	0.000	130.681	298.15
300	28.849	8.521	130.858	102.454	0.053	130.681	300
350	29.081	9.969	135.325	106.842	1.501	131.036	350
400	29.181	11.426	139.215	110.650	2.958	131.820	400
500	29.260	14.349	145.737	117.039	5.881	133.975	500
600	29.327	17.278	151.077	122.280	8.810	136.394	600
700	29.440	20.216	155.605	126.725	11.748	138.822	700
800	29.623	23.169	159.548	130.587	14.701	141.172	800
900	29.880	26.143	163.051	134.003	17.675	143.412	900
1000	30.204	29.147	166.215	137.068	20.679	145.536	1000
1100	30.580	32.186	169.111	139.851	23.718	147.549	1100
1200	30.991	35.264	171.790	142.402	26.796	149.459	1200
1300	31.422	38.385	174.288	144.760	29.917	151.274	1300
1400	31.860	41.549	176.632	146.953	33.081	153.002	1400
1500	32.296	44.758	178.846	149.007	36.289	154.653	1500
1600	32.724	48.009	180.944	150.938	39.540	156.231	1600
1700	33.138	51.302	182.940	152.762	42.834	157.743	1700
1800	33.535	54.636	184.845	154.492	46.168	159.196	1800
1900	33.915	58.008	186.669	156.138	49.540	160.595	1900
2000	34.277	61.418	188.418	157.709	52.950	161.943	2000
2100	34.622	64.863	190.099	159.212	56.395	163.244	2100
2200	34.949	68.342	191.717	160.652	59.874	164.501	2200
2300	35.259	71.852	193.277	162.037	63.384	165.719	2300
2400	35.555	75.393	194.784	163.370	66.925	166.898	2400
2500	35.837	78.963	196.241	164.656	70.495	168.043	2500
2600	36.106	82.560	197.652	165.898	74.092	169.155	2600
2700	36.363	86.184	199.020	167.100	77.716	170.236	2700
2800	36.610	89.832	200.347	168.264	81.364	171.288	2800
2900	36.847	93.505	201.636	169.393	85.037	172.313	2900
3000	37.076	97.202	202.888	170.487	88.734	173.310	3000
3100	37.298	100.920	204.108	171.553	92.452	174.285	3100
3200	37.513	104.661	205.295	172.588	96.193	175.235	3200
3300	37.723	108.423	206.453	173.597	99.955	176.163	3300
3400	37.928	112.205	207.582	174.580	103.737	177.071	3400
3500	38.129	116.008	208.685	175.540	107.540	177.959	3500
3600	38.326	119.831	209.761	176.474	111.363	178.827	3600
3700	38.520	123.673	210.814	177.389	115.205	179.677	3700
3800	38.711	127.536	211.844	178.282	119.067	180.510	3800
3900	38.899	131.416	212.852	179.156	122.947	181.327	3900
4000	39.085	135.316	213.839	180.010	126.848	182.127	4000
4100	39.269	139.233	214.807	180.848	130.765	182.913	4100
4200	39.450	143.169	215.755	181.667	134.701	183.683	4200
4300	39.629	147.123	216.685	182.470	138.655	184.440	4300
4400	39.806	151.095	217.598	183.258	142.627	185.183	4400
4500	39.980	155.084	218.495	184.032	146.616	185.914	4500
4600	40 151	159.091	219.376	184.791	150.623	186.632	4600
4700	40.318	163.114	220.241	185.536	154.646	187.338	4700
4800	40.482	167.154	221.091	186.267	158.686	188.032	4800
4900	40.641	171.210	221.928	186.987	162.742	188.715	4900
5000	40.796	175.282	222.750	187.694	166.814	189.387	5000
5100	40.945	179.370	223.560	188.390	170.902	190.050	5100
5200	41.088	183.471	224.356	189.073	175.003	190.702	5200
5300	41.226	187.587	225.140	189.746	179.119	191.344	5300
5400	41.357	191.716	225.912	190.409	183.248	191.977	5400
5500	41.480	195.858	226.672	191.062	187.390	192.601	5500
5600	41.597	200.012	227.420	191.704	191.544	193.216	5600
5700	41.704	204.177	228.158	192.338	195.709	193.823	5700
5800	41.804	208.353	228.884	192.961	199.884	194.421	5800
5900	41.894	212.538	229.599	193.576	204.069	195.011	5900
6000	41.975	216.731	230.304	194.182	208.263	195.594	6000
6200	42.108	225.140	231.683	195.370	216.672	196.736	6200
6400	42.201	233.572	233.021	196.526	225.104	197.849	6400
6600	42.253	242.018	234.320	197.651	233.550	198.934	6600
6800	42.264	250.470	235.582	198.748	242.002	199.994	6800
7000	42.234	258.920	236.807	199.819	250.452	201.028	7000
7200	42.165	267.360	237.996	200.863	258.892	202.039	7200
7400	42.056	275.783	239.150	201.882	267.315	203.027	7400
7600	41.911	284.180	240.269	202.877	275.712	203.991	7600
7800	41.732	292.546	241.356	203.851	284.077	204.936	7800
8000	41.520	300.871	242.410	204.802	292.403	205.860	8000

TABLE III.21. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.280	309.152	243.432	205.731	300.684	206.764	8200
8400	41.014	317.381	244.424	206.641	308.913	207.649	8400
8600	40.724	325.556	245.385	207.530	317.088	208.515	8600
8800	40.415	333.670	246.318	208.401	325.202	209.364	8800
9000	40.088	341.720	247.223	209.255	333.252	210.195	9000
9200	39.745	349.704	248.100	210.089	341.236	211.010	9200
9400	39.391	357.618	248.951	210.907	349.150	211.808	9400
9600	39.027	365.460	249.776	211.708	356.992	212.590	9600
9800	38.655	373.228	250.577	212.493	364.760	213.357	9800
10000	38.277	380.922	251.354	213.262	372.453	214.109	10000
10500	37.321	399.823	253.199	215.121	391.355	215.928	10500
11000	36.367	418.244	254.914	216.891	409.776	217.661	11000
11500	35.432	436.193	256.510	218.580	427.725	219.316	11500
12000	34.530	453.681	257.999	220.192	445.213	220.897	12000
12500	33.669	470.730	259.390	221.731	462.262	222.409	12500
13000	32.855	487.359	260.695	223.205	478.891	223.857	13000
13500	32.089	503.593	261.921	224.617	495.125	225.245	13500
14000	31.373	519.457	263.074	225.970	510.989	226.574	14000
14500	30.706	534.975	264.163	227.268	526.507	227.852	14500
15000	30.085	550.171	265.194	228.516	541.703	229.080	15000
15500	29.510	565.068	266.171	229.715	556.600	230.261	15500
16000	28.976	579.688	267.099	230.868	571.220	231.397	16000
16500	28.483	594.051	267.983	231.980	585.583	232.493	16500
17000	28.025	608.177	268.827	233.052	599.709	233.550	17000
17500	27.602	622.083	269.633	234.085	613.615	234.569	17500
18000	27.211	635.785	270.405	235.083	627.317	235.554	18000
18500	26.848	649.299	271.145	236.047	640.831	236.505	18500
19000	26.511	662.638	271.857	236.981	654.170	237.427	19000
19500	26.200	675.815	272.541	237.884	667.347	238.318	19500
20000	25.910	688.841	273.201	238.759	680.373	239.182	20000

TABLE III.22. - SELECTED THERMODYNAMIC FUNCTIONS FOR He

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
100	20.786	2.079	103.446	82.660	-4.119	144.634	100
200	20.786	4.157	117.854	97.068	-2.040	128.055	200
298.15	20.786	6.197	126.154	105.367	0.000	126.154	298.15
300	20.786	6.236	126.282	105.496	0.038	126.154	300
400	20.786	8.315	132.262	111.476	2.117	126.969	400
500	20.786	10.393	136.900	116.114	4.196	128.509	500
600	20.786	12.472	140.690	119.904	6.274	130.233	600
700	20.786	14.550	143.894	123.108	8.353	131.962	700
800	20.786	16.629	146.670	125.884	10.432	133.631	800
900	20.786	18.708	149.118	128.332	12.510	135.218	900
1000	20.786	20.786	151.308	130.522	14.589	136.720	1000
1100	20.786	22.865	153.290	132.503	16.667	138.137	1100
1200	20.786	24.944	155.098	134.312	18.746	139.476	1200
1300	20.786	27.022	156.762	135.976	20.825	140.743	1300
1400	20.786	29.101	158.302	137.516	22.903	141.943	1400
1500	20.786	31.179	159.736	138.950	24.982	143.082	1500
1600	20.786	33.258	161.078	140.292	27.061	144.165	1600
1700	20.786	35.337	162.338	141.552	29.139	145.197	1700
1800	20.786	37.415	163.526	142.740	31.218	146.183	1800
1900	20.786	39.494	164.650	143.864	33.296	147.126	1900
2000	20.786	41.573	165.716	144.930	35.375	148.029	2000
2100	20.786	43.651	166.730	145.944	37.454	148.895	2100
2200	20.786	45.730	167.697	146.911	39.532	149.728	2200
2300	20.786	47.808	168.621	147.835	41.611	150.530	2300
2400	20.786	49.887	169.506	148.720	43.690	151.302	2400
2500	20.786	51.966	170.355	149.568	45.768	152.047	2500
2600	20.786	54.044	171.170	150.384	47.847	152.767	2600
2700	20.786	56.123	171.954	151.168	49.926	153.463	2700
2800	20.786	58.202	172.710	151.924	52.004	154.137	2800
2900	20.786	60.280	173.440	152.653	54.083	154.791	2900
3000	20.786	62.359	174.144	153.358	56.161	155.424	3000
3100	20.786	64.437	174.826	154.040	58.240	156.039	3100
3200	20.786	66.516	175.486	154.700	60.319	156.636	3200
3300	20.786	68.595	176.126	155.339	62.397	157.217	3300
3400	20.786	70.673	176.746	155.960	64.476	157.783	3400
3500	20.786	72.752	177.349	156.562	66.555	158.333	3500
3600	20.786	74.831	177.934	157.148	68.633	158.869	3600
3700	20.786	76.909	178.504	157.717	70.712	159.392	3700
3800	20.786	78.988	179.058	158.272	72.790	159.903	3800
3900	20.786	81.066	179.598	158.812	74.869	160.401	3900
4000	20.786	83.145	180.124	159.338	76.948	160.887	4000
4100	20.786	85.224	180.638	159.851	79.026	161.363	4100
4200	20.786	87.302	181.138	160.352	81.105	161.828	4200
4300	20.786	89.381	181.628	160.841	83.184	162.283	4300
4400	20.786	91.460	182.105	161.319	85.262	162.728	4400
4500	20.786	93.538	182.573	161.786	87.341	163.163	4500
4600	20.786	95.617	183.029	162.243	89.419	163.590	4600
4700	20.786	97.695	183.476	162.690	91.498	164.009	4700
4800	20.786	99.774	183.914	163.128	93.577	164.419	4800
4900	20.786	101.853	184.343	163.556	95.655	164.821	4900
5000	20.786	103.931	184.763	163.976	97.734	165.216	5000
5100	20.786	106.010	185.174	164.388	99.813	165.603	5100
5200	20.786	108.089	185.578	164.792	101.891	165.983	5200
5300	20.786	110.167	185.974	165.188	103.970	166.357	5300
5400	20.786	112.246	186.362	165.576	106.048	166.724	5400
5500	20.786	114.325	186.744	165.957	108.127	167.084	5500
5600	20.786	116.403	187.118	166.332	110.206	167.439	5600
5700	20.786	118.482	187.486	166.700	112.284	167.787	5700
5800	20.786	120.560	187.848	167.061	114.363	168.130	5800
5900	20.786	122.639	188.203	167.417	116.442	168.467	5900
6000	20.786	124.718	188.552	167.766	118.520	168.799	6000
6200	20.786	128.875	189.234	168.448	122.677	169.447	6200
6400	20.786	133.032	189.894	169.108	126.835	170.076	6400
6600	20.786	137.189	190.534	169.747	130.992	170.686	6600
6800	20.786	141.347	191.154	170.368	135.149	171.279	6800
7000	20.786	145.504	191.757	170.970	139.306	171.856	7000
7200	20.786	149.661	192.342	171.556	143.464	172.417	7200
7400	20.786	153.818	192.912	172.125	147.621	172.963	7400
7600	20.786	157.976	193.466	172.680	151.778	173.495	7600
7800	20.786	162.133	194.006	173.220	155.936	174.014	7800
8000	20.786	166.290	194.532	173.746	160.093	174.521	8000

TABLE III.22. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.786	170.447	195.045	174.259	164.250	175.015	8200
8400	20.786	174.605	195.546	174.760	168.407	175.498	8400
8600	20.786	178.762	196.036	175.249	172.565	175.970	8600
8800	20.786	182.919	196.513	175.727	176.722	176.431	8800
9000	20.786	187.076	196.980	176.194	180.879	176.883	9000
9200	20.786	191.234	197.437	176.651	185.036	177.325	9200
9400	20.786	195.391	197.884	177.098	189.194	177.757	9400
9600	20.786	199.548	198.322	177.536	193.351	178.181	9600
9800	20.786	203.705	198.751	177.964	197.508	178.597	9800
10000	20.786	207.863	199.171	178.384	201.665	179.004	10000
10500	20.786	218.256	200.185	179.398	212.058	179.989	10500
11000	20.786	228.649	201.152	180.365	222.452	180.929	11000
11500	20.786	239.042	202.076	181.289	232.845	181.828	11500
12000	20.786	249.435	202.960	182.174	243.238	182.691	12000
12500	20.787	259.829	203.809	183.023	253.631	183.518	12500
13000	20.787	270.222	204.624	183.838	264.025	184.315	13000
13500	20.787	280.616	205.409	184.622	274.418	185.081	13500
14000	20.788	291.009	206.165	185.378	284.812	185.821	14000
14500	20.790	301.404	206.894	186.108	295.206	186.535	14500
15000	20.792	311.799	207.599	186.812	305.602	187.226	15000
15500	20.795	322.196	208.281	187.494	315.998	187.894	15500
16000	20.800	332.595	208.941	188.154	326.397	188.541	16000
16500	20.807	342.996	209.581	188.794	336.799	189.169	16500
17000	20.817	353.402	210.203	189.414	347.205	189.779	17000
17500	20.829	363.812	210.806	190.017	357.615	190.371	17500
18000	20.833	374.215	211.392	190.602	368.018	190.947	18000
18500	20.842	384.625	211.963	191.172	378.428	191.507	18500
19000	20.860	395.050	212.519	191.726	388.853	192.053	19000
19500	20.882	405.484	213.061	192.267	399.286	192.584	19500
20000	20.910	415.931	213.590	192.793	409.734	193.103	20000

TABLE III.23. - SELECTED THERMODYNAMIC FUNCTIONS FOR Hg(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-9.343	INFINITE	0
	100	24.255	1.706	37.219	20.159	-7.637	113.589	100
	150	25.878	2.963	47.393	27.640	-6.380	89.926	150
	200	27.275	4.291	55.022	33.567	-5.052	80.282	200
cr	234.29	28.485	5.246	59.428	37.037	-4.097	76.915	234.29
ℓ	234.29	28.476	7.541	69.225	37.037	-1.802	76.915	234.29
	250	28.351	7.988	71.069	39.117	-1.355	76.489	250
	298.15	27.978	9.343	76.028	44.691	0.000	76.028	298.15
	300	27.963	9.395	76.201	44.884	0.052	76.028	300
	350	27.639	10.784	80.486	49.675	1.441	76.369	350
	400	27.414	12.160	84.161	53.761	2.817	77.118	400
	450	27.267	13.527	87.381	57.321	4.184	78.083	450
	500	27.175	14.888	90.248	60.472	5.545	79.158	500
	550	27.129	16.245	92.836	63.300	6.902	80.287	550
	600	27.139	17.602	95.197	65.860	8.259	81.432	600
	700	27.291	20.322	99.389	70.358	10.979	83.705	700
	800	27.582	23.065	103.052	74.221	13.722	85.899	800
	900	27.896	25.839	106.318	77.608	16.496	87.989	900
	1000	28.210	28.644	109.274	80.630	19.301	89.973	1000
	1100	28.523	31.481	111.977	83.358	22.138	91.852	1100
	1200	28.837	34.349	114.472	85.848	25.006	93.634	1200
	1300	29.151	37.248	116.793	88.141	27.905	95.328	1300
	1400	29.465	40.179	118.965	90.266	30.836	96.939	1400
	1500	29.778	43.141	121.008	92.247	33.798	98.476	1500
	1600	30.092	46.135	122.940	94.106	36.792	99.945	1600
	1700	30.406	49.159	124.774	95.857	39.816	101.353	1700
	1800	30.719	52.216	126.521	97.512	42.873	102.703	1800
	1900	31.033	55.303	128.190	99.083	45.960	104.001	1900
	2000	31.347	58.422	129.790	100.579	49.079	105.250	2000

TABLE III.24. - SELECTED THERMODYNAMIC FUNCTIONS FOR I_2(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-13.196	INFINITE	0
	5	0.580	0.001	0.192	0.048	-13.195	2639.248	5
	10	4.030	0.011	1.464	0.364	-13.185	1319.964	10
	15	10.250	0.046	4.226	1.159	-13.150	880.893	15
	20	16.180	0.112	8.000	2.400	-13.084	662.200	20
	25	21.510	0.207	12.201	3.921	-12.989	531.761	25
	30	25.760	0.326	16.518	5.651	-12.870	445.518	30
	35	28.910	0.462	20.732	7.532	-12.734	384.561	35
	40	31.620	0.619	24.773	9.298	-12.577	339.198	40
	45	33.930	0.778	28.635	11.346	-12.418	304.591	45
	50	35.860	0.953	32.317	13.257	-12.243	277.177	50
	60	39.090	1.328	39.146	17.013	-11.868	236.946	60
	70	41.650	1.733	45.380	20.623	-11.463	209.137	70
	80	43.320	2.158	51.053	24.078	-11.038	189.028	80
	90	44.740	2.598	56.237	27.370	-10.598	173.993	90
	100	45.650	3.051	61.007	30.497	-10.145	162.457	100
	110	46.860	3.514	65.421	33.476	-9.682	153.439	110
	120	47.730	3.987	69.538	36.313	-9.209	146.280	120
	130	48.480	4.468	73.387	39.018	-8.728	140.525	130
	140	49.020	4.956	77.002	41.602	-8.240	135.859	140
	150	49.590	5.448	80.400	44.080	-7.748	132.053	150
	160	50.070	5.947	83.617	46.448	-7.249	128.923	160
	170	50.490	6.449	86.663	48.728	-6.747	126.351	170
	180	50.870	6.956	89.563	50.919	-6.240	124.230	180
	190	51.230	7.467	92.324	53.024	-5.729	122.477	190
	200	51.570	7.981	94.960	55.055	-5.215	121.035	200
	210	52.050	8.499	97.487	57.016	-4.697	119.854	210
	220	52.460	9.020	99.910	58.910	-4.176	118.892	220
	230	52.790	9.546	102.249	60.745	-3.650	118.119	230
	240	53.050	10.076	104.504	62.521	-3.120	117.504	240
	250	53.250	10.607	106.671	64.243	-2.589	117.027	250
	260	53.420	11.140	108.763	65.917	-2.056	116.671	260
	270	53.610	11.675	110.784	67.543	-1.521	116.417	270
	280	53.860	12.213	112.738	69.120	-0.983	116.249	280
	290	54.150	12.752	114.629	70.657	-0.444	116.160	290
	298.15	54.440	13.196	116.139	71.879	0.000	116.139	298.15
	300	54.517	13.297	116.476	72.153	0.101	116.139	300
	320	55.360	14.396	120.021	75.033	1.200	116.271	320
	340	56.952	15.518	123.424	77.783	2.322	116.595	340
	360	58.785	16.675	126.730	80.411	3.479	117.066	360
	380	60.811	17.871	129.962	82.933	4.675	117.659	380
cr	386.75	61.531	18.284	131.039	83.763	5.088	117.883	386.75
ℓ	386.75	79.555	33.949	171.543	83.763	20.753	117.883	386.75
	400	79.555	35.003	174.223	86.715	21.807	119.705	400
	500	79.555	42.959	191.975	106.058	29.763	132.450	500
	600	79.555	50.914	206.480	121.623	37.718	143.616	600
	700	79.555	58.870	218.743	134.644	45.674	153.495	700
	800	79.555	66.825	229.366	145.835	53.629	162.330	800
	900	79.555	74.781	238.737	155.647	61.585	170.309	900
	1000	79.555	82.736	247.119	164.383	69.540	177.579	1000
	1100	79.555	90.692	254.701	172.254	77.496	184.250	1100
	1200	79.555	98.647	261.623	179.417	85.451	190.414	1200
	1300	79.555	106.603	267.991	185.989	93.407	196.140	1300
	1400	79.555	114.558	273.887	192.059	101.362	201.485	1400
	1500	79.555	122.514	279.375	197.700	109.318	206.497	1500
	1600	79.555	130.469	284.510	202.967	117.273	211.214	1600
	1700	79.555	138.425	289.333	207.906	125.229	215.669	1700
	1800	79.555	146.380	293.880	212.558	133.184	219.889	1800
	1900	79.555	154.336	298.181	216.952	141.140	223.897	1900
	2000	79.555	162.291	302.262	221.116	149.095	227.714	2000
	2100	79.555	170.247	306.143	225.074	157.051	231.357	2100
	2200	79.555	178.202	309.844	228.843	165.006	234.842	2200
	2300	79.555	186.158	313.381	232.443	172.962	238.180	2300
	2400	79.555	194.113	316.767	235.886	180.917	241.384	2400
	2500	79.555	202.069	320.014	239.187	188.873	244.465	2500
	2600	79.555	210.024	323.134	242.356	196.828	247.431	2600
	2700	79.555	217.980	326.137	245.404	204.784	250.291	2700
	2800	79.555	225.935	329.030	248.339	212.739	253.052	2800
	2900	79.555	233.891	331.822	251.170	220.695	255.720	2900
	3000	79.555	241.846	334.519	253.903	228.650	258.302	3000
	3100	79.555	249.802	337.127	256.546	236.606	260.803	3100
	3200	79.555	257.757	339.653	259.104	244.561	263.228	3200
	3300	79.555	265.713	342.101	261.582	252.517	265.581	3300
	3400	79.555	273.668	344.476	263.985	260.472	267.867	3400
	3500	79.555	281.624	346.782	266.318	268.428	270.089	3500
	3600	79.555	289.579	349.023	268.585	276.383	272.250	3600
	3700	79.555	297.535	351.203	270.788	284.339	274.355	3700
	3800	79.555	305.490	353.325	272.932	292.294	276.405	3800
	3900	79.555	313.446	355.391	275.020	300.250	278.404	3900
	4000	79.555	321.401	357.405	277.055	308.205	280.354	4000

TABLE III.24. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
4100	79.555	329.357	359.370	279.039	316.161	282.257	4100
4200	79.555	337.312	361.287	280.974	324.116	284.116	4200
4300	79.555	345.268	363.159	282.864	332.072	285.933	4300
4400	79.555	353.223	364.988	284.710	340.027	287.709	4400
4500	79.555	361.179	366.775	286.514	347.983	289.446	4500
4600	79.555	369.134	368.524	288.277	355.938	291.146	4600
4700	79.555	377.090	370.235	290.003	363.894	292.811	4700
4800	79.555	385.045	371.910	291.692	371.849	294.441	4800
4900	79.555	393.001	373.550	293.346	379.805	296.039	4900
5000	79.555	400.956	375.157	294.966	387.760	297.605	5000
5100	79.555	408.912	376.733	296.554	395.716	299.142	5100
5200	79.555	416.867	378.278	298.111	403.671	300.649	5200
5300	79.555	424.823	379.793	299.638	411.627	302.128	5300
5400	79.555	432.778	381.280	301.136	419.582	303.580	5400
5500	79.555	440.734	382.740	302.606	427.538	305.006	5500
5600	79.555	448.689	384.173	304.050	435.493	306.407	5600
5700	79.555	456.645	385.581	305.468	443.449	307.783	5700
5800	79.555	464.600	386.965	306.862	451.404	309.137	5800
5900	79.555	472.556	388.325	308.231	459.360	310.467	5900
6000	79.555	480.511	389.662	309.577	467.315	311.776	6000

TABLE III.25. - SELECTED THERMODYNAMIC FUNCTIONS FOR K(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.088	INFINITE	0
	100	24.650	1.733	35.590	18.260	-5.355	89.140	100
	200	26.820	4.325	53.467	31.842	-2.763	67.282	200
	298.15	29.600	7.088	64.680	40.907	0.000	64.680	298.15
	300	29.671	7.143	64.863	41.053	0.055	64.680	300
cr	336.86	32.130	8.276	68.422	43.854	1.188	64.896	336.86
ℓ	336.86	32.129	10.597	75.313	43.854	3.509	64.896	336.86
	400	31.552	12.607	80.784	49.266	5.519	66.986	400
	500	30.741	15.720	87.734	56.294	8.632	70.470	500
	600	30.158	18.763	93.283	62.011	11.675	73.825	600
	700	29.851	21.761	97.905	66.818	14.673	76.944	700
	800	29.838	24.743	101.887	70.958	17.655	79.818	800
	900	30.130	27.739	105.415	74.594	20.651	82.469	900
	1000	30.730	30.779	108.618	77.839	23.691	84.927	1000
	1100	31.643	33.895	111.587	80.773	26.807	87.217	1100
	1200	32.870	37.118	114.391	83.459	30.030	89.366	1200
	1300	34.411	40.480	117.081	85.943	33.392	91.395	1300
	1400	36.268	44.011	119.697	88.261	36.923	93.323	1400
	1500	38.440	47.744	122.271	90.442	40.656	95.167	1500
	1600	40.929	51.710	124.830	92.511	44.622	96.941	1600
	1700	43.734	55.940	127.394	94.488	48.852	98.658	1700
	1800	46.856	60.467	129.980	96.387	53.379	100.325	1800
	1900	50.295	65.322	132.605	98.225	58.234	101.956	1900
	2000	54.050	70.537	135.278	100.009	63.449	103.553	2000
	2100	58.123	76.143	138.013	101.754	69.055	105.130	2100
	2200	62.512	82.172	140.817	103.466	75.084	106.688	2200

TABLE III.26. - SELECTED THERMODYNAMIC FUNCTIONS FOR Kr

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
100	20.786	2.079	141.379	120.593	-4.119	182.567	100
200	20.786	4.157	155.787	135.001	-2.040	165.988	200
298.15	20.786	6.197	164.086	143.300	0.000	164.086	298.15
300	20.786	6.236	164.215	143.429	0.038	164.087	300
400	20.786	8.315	170.195	149.409	2.117	164.902	400
500	20.786	10.393	174.833	154.047	4.196	166.442	500
600	20.786	12.472	178.623	157.837	6.274	168.166	600
700	20.786	14.550	181.827	161.041	8.353	169.894	700
800	20.786	16.629	184.603	163.817	10.432	171.563	800
900	20.786	18.708	187.051	166.265	12.510	173.151	900
1000	20.786	20.786	189.241	168.455	14.589	174.652	1000
1100	20.786	22.865	191.222	170.436	16.667	176.070	1100
1200	20.786	24.944	193.031	172.245	18.746	177.409	1200
1300	20.786	27.022	194.695	173.908	20.825	178.676	1300
1400	20.786	29.101	196.235	175.449	22.903	179.876	1400
1500	20.786	31.179	197.669	176.883	24.982	181.015	1500
1600	20.786	33.258	199.011	178.224	27.061	182.098	1600
1700	20.786	35.337	200.271	179.485	29.139	183.130	1700
1800	20.786	37.415	201.459	180.673	31.218	184.116	1800
1900	20.786	39.494	202.583	181.797	33.296	185.058	1900
2000	20.786	41.573	203.649	182.863	35.375	185.962	2000
2100	20.786	43.651	204.663	183.877	37.454	186.828	2100
2200	20.786	45.730	205.630	184.844	39.532	187.661	2200
2300	20.786	47.808	206.554	185.768	41.611	188.462	2300
2400	20.786	49.887	207.439	186.653	43.690	189.235	2400
2500	20.786	51.966	208.287	187.501	45.768	189.980	2500
2600	20.786	54.044	209.103	188.316	47.847	190.700	2600
2700	20.786	56.123	209.887	189.101	49.926	191.396	2700
2800	20.786	58.202	210.643	189.857	52.004	192.070	2800
2900	20.786	60.280	211.372	190.586	54.083	192.723	2900
3000	20.786	62.359	212.077	191.291	56.161	193.357	3000
3100	20.786	64.437	212.759	191.972	58.240	193.972	3100
3200	20.786	66.516	213.419	192.632	60.319	194.569	3200
3300	20.786	68.595	214.058	193.272	62.397	195.150	3300
3400	20.786	70.673	214.679	193.893	64.476	195.715	3400
3500	20.786	72.752	215.281	194.495	66.555	196.266	3500
3600	20.786	74.831	215.867	195.081	68.633	196.802	3600
3700	20.786	76.909	216.436	195.650	70.712	197.325	3700
3800	20.786	78.988	216.991	196.205	72.790	197.835	3800
3900	20.786	81.066	217.531	196.744	74.869	198.334	3900
4000	20.786	83.145	218.057	197.271	76.948	198.820	4000
4100	20.786	85.224	218.570	197.784	79.026	199.296	4100
4200	20.786	87.302	219.071	198.285	81.105	199.760	4200
4300	20.786	89.381	219.560	198.774	83.184	200.215	4300
4400	20.786	91.460	220.038	199.252	85.262	200.660	4400
4500	20.786	93.538	220.505	199.719	87.341	201.096	4500
4600	20.786	95.617	220.962	200.176	89.419	201.523	4600
4700	20.786	97.695	221.409	200.623	91.498	201.942	4700
4800	20.786	99.774	221.847	201.061	93.577	202.352	4800
4900	20.786	101.853	222.275	201.489	95.655	202.754	4900
5000	20.786	103.931	222.695	201.909	97.734	203.149	5000
5100	20.786	106.010	223.107	202.321	99.813	203.536	5100
5200	20.786	108.089	223.511	202.724	101.891	203.916	5200
5300	20.786	110.167	223.907	203.120	103.970	204.290	5300
5400	20.786	112.246	224.295	203.509	106.048	204.656	5400
5500	20.786	114.325	224.676	203.890	108.127	205.017	5500
5600	20.786	116.403	225.051	204.265	110.206	205.371	5600
5700	20.786	118.482	225.419	204.633	112.284	205.720	5700
5800	20.786	120.560	225.780	204.994	114.363	206.063	5800
5900	20.786	122.639	226.136	205.349	116.442	206.400	5900
6000	20.786	124.718	226.485	205.699	118.520	206.732	6000
6200	20.787	128.875	227.167	206.380	122.678	207.380	6200
6400	20.787	133.032	227.827	207.040	126.835	208.009	6400
6600	20.787	137.190	228.466	207.680	130.992	208.619	6600
6800	20.788	141.347	229.087	208.301	135.150	209.212	6800
7000	20.789	145.505	229.689	208.903	139.307	209.788	7000
7200	20.790	149.663	230.275	209.489	143.465	210.349	7200
7400	20.792	153.821	230.845	210.058	147.624	210.896	7400
7600	20.795	157.980	231.399	210.613	151.782	211.428	7600
7800	20.799	162.139	231.940	211.152	155.942	211.947	7800
8000	20.805	166.300	232.466	211.679	160.102	212.453	8000

TABLE III.26. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.812	170.461	232.980	212.192	164.264	212.948	8200
8400	20.822	174.624	233.482	212.693	168.427	213.431	8400
8600	20.836	178.790	233.972	213.182	172.593	213.903	8600
8800	20.853	182.959	234.451	213.660	176.762	214.364	8800
9000	20.875	187.132	234.920	214.127	180.934	214.816	9000
9200	20.903	191.309	235.379	214.584	185.112	215.258	9200
9400	20.938	195.493	235.829	215.032	189.296	215.691	9400
9600	20.982	199.685	236.270	215.470	193.488	216.115	9600
9800	21.035	203.887	236.703	215.898	197.689	216.531	9800
10000	21.079	208.086	237.127	216.319	201.889	216.938	10000
10500	21.276	218.666	238.160	217.334	212.469	217.925	10500
11000	21.580	229.376	239.156	218.304	223.178	218.867	11000
11500	21.959	240.218	240.120	219.231	234.020	219.770	11500
12000	22.445	251.250	241.058	220.121	245.053	220.637	12000
12500	23.166	262.645	241.988	220.977	256.447	221.473	12500
13000	24.086	274.438	242.913	221.803	268.241	222.279	13000
13500	25.079	286.549	243.826	222.600	280.351	223.059	13500
14000	26.045	298.884	244.720	223.371	292.687	223.814	14000
14500	27.094	311.616	245.610	224.119	305.418	224.547	14500
15000	28.719	325.559	246.555	224.851	319.362	225.264	15000
15500	30.580	340.374	247.527	225.567	334.177	225.967	15500
16000	32.672	356.178	248.530	226.269	349.980	226.656	16000
16500	34.982	373.082	249.570	226.959	366.885	227.335	16500
17000	37.491	391.193	250.651	227.640	384.996	228.004	17000
17500	40.168	410.601	251.776	228.313	404.404	228.667	17500
18000	42.977	431.383	252.947	228.981	425.185	229.326	18000
18500	45.876	453.593	254.164	229.645	447.396	229.980	18500
19000	48.262	475.662	255.330	230.295	469.465	230.621	19000
19500	49.484	495.349	256.317	230.914	489.151	231.232	19500
20000	50.539	515.254	257.286	231.523	509.057	231.833	20000

TABLE III.27. - SELECTED THERMODYNAMIC FUNCTIONS FOR Li(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.632	INFINITE	0
	100	12.970	0.494	7.330	2.390	-4.138	48.710	100
	200	21.550	2.338	19.852	8.162	-2.294	31.322	200
	250	23.392	3.470	24.872	10.992	-1.162	29.520	250
	298.15	24.860	4.632	29.120	13.584	0.000	29.120	298.15
	300	24.881	4.678	29.274	13.680	0.046	29.120	300
	350	25.921	5.945	33.177	16.192	1.313	29.426	350
	400	27.584	7.280	36.742	18.541	2.648	30.121	400
cr	453.69	29.769	8.819	40.347	20.910	4.187	31.119	453.69
ℓ	453.69	30.375	11.819	46.960	20.910	7.187	31.119	453.69
	500	30.071	13.218	49.897	23.461	8.586	32.725	500
	600	29.584	16.199	55.334	28.335	11.567	36.055	600
	700	29.248	19.140	59.867	32.525	14.508	39.142	700
	800	29.017	22.052	63.757	36.191	17.420	41.981	800
	900	28.870	24.946	67.165	39.447	20.314	44.594	900
	1000	28.795	27.829	70.202	42.374	23.197	47.006	1000
	1100	28.785	30.707	72.946	45.030	26.075	49.241	1100
	1200	28.836	33.588	75.452	47.462	28.956	51.322	1200
	1300	28.945	36.476	77.764	49.706	31.844	53.269	1300
	1400	29.111	39.379	79.915	51.787	34.747	55.096	1400
	1500	29.334	42.300	81.931	53.730	37.668	56.818	1500
	1600	29.611	45.247	83.832	55.553	40.615	58.448	1600
	1700	29.942	48.224	85.637	57.270	43.592	59.995	1700
	1800	30.328	51.237	87.359	58.894	46.605	61.467	1800
	1900	30.767	54.292	89.011	60.436	49.660	62.874	1900
	2000	31.260	57.393	90.601	61.905	52.761	64.221	2000
	2100	31.806	60.546	92.139	63.308	55.914	65.514	2100
	2200	32.406	63.756	93.633	64.653	59.124	66.758	2200
	2300	33.058	67.028	95.087	65.944	62.396	67.958	2300
	2400	33.764	70.369	96.509	67.188	65.737	69.118	2400
	2500	34.522	73.783	97.902	68.389	69.151	70.242	2500
	2600	35.334	77.275	99.272	69.551	72.643	71.332	2600
	2700	36.198	80.851	100.622	70.677	76.219	72.392	2700
	2800	37.115	84.517	101.954	71.770	79.885	73.424	2800
	2900	38.084	88.276	103.274	72.834	83.644	74.431	2900
	3000	39.107	92.135	104.582	73.870	87.503	75.414	3000

TABLE III.28. - SELECTED THERMODYNAMIC FUNCTIONS FOR Mg(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.979	INFINITE	0
	20	0.396	0.002	0.125	0.036	-4.977	248.994	20
	30	1.414	0.009	0.421	0.107	-4.970	166.079	30
	40	3.404	0.033	1.088	0.261	-4.946	124.740	40
	50	5.710	0.079	2.092	0.522	-4.901	100.105	50
	60	8.092	0.148	3.344	0.885	-4.832	83.871	60
	70	10.398	0.240	4.766	1.336	-4.739	72.467	70
	80	12.502	0.355	6.295	1.860	-4.624	64.099	80
	90	14.291	0.489	7.875	2.440	-4.490	57.764	90
	100	15.671	0.639	9.455	3.063	-4.340	52.854	100
	120	18.047	0.978	12.536	4.387	-4.001	45.880	120
	140	19.717	1.356	15.450	5.761	-3.623	41.327	140
	160	20.957	1.764	18.168	7.144	-3.215	38.264	160
	180	21.907	2.193	20.693	8.511	-2.786	36.173	180
	200	22.649	2.639	23.041	9.848	-2.341	34.744	200
	220	23.241	3.098	25.229	11.148	-1.881	33.781	220
	240	23.721	3.568	27.272	12.408	-1.412	33.154	240
	260	24.124	4.046	29.187	13.626	-0.933	32.776	260
	280	24.477	4.532	30.988	14.802	-0.447	32.585	280
	298.15	24.775	4.979	32.535	15.835	0.000	32.535	298.15
	300	24.862	5.025	32.689	15.938	0.046	32.536	300
	350	25.642	6.289	36.583	18.615	1.310	32.841	350
	400	26.234	7.586	40.047	21.082	2.607	33.530	400
	450	26.741	8.911	43.167	23.365	3.932	34.430	450
	500	27.218	10.260	46.009	25.489	5.281	35.448	500
	600	28.192	13.030	51.057	29.340	8.051	37.639	600
	700	29.284	15.902	55.483	32.765	10.923	39.878	700
	800	30.548	18.892	59.473	35.858	13.913	42.082	800
	900	32.010	22.018	63.154	38.689	17.039	44.221	900
cr	923	32.376	22.759	63.966	39.308	17.780	44.703	923
ℓ	923	34.300	31.159	73.067	39.308	26.180	44.703	923
	1000	34.300	33.800	75.815	42.015	28.821	46.994	1000
	1100	34.300	37.230	79.084	45.239	32.251	49.765	1100
	1200	34.300	40.660	82.069	48.185	35.681	52.335	1200
	1300	34.300	44.090	84.814	50.899	39.111	54.729	1300
	1400	34.300	47.520	87.356	53.413	42.541	56.970	1400
	1500	34.300	50.950	89.723	55.756	45.971	59.075	1500
	1600	34.300	54.380	91.936	57.949	49.401	61.061	1600
	1700	34.300	57.810	94.016	60.010	52.831	62.939	1700
	1800	34.300	61.240	95.976	61.954	56.261	64.720	1800
	1900	34.300	64.670	97.831	63.794	59.691	66.414	1900
	2000	34.300	68.100	99.590	65.540	63.121	68.030	2000
	2100	34.300	71.530	101.264	67.202	66.551	69.573	2100
	2200	34.300	74.960	102.859	68.786	69.981	71.050	2200
	2300	34.300	78.390	104.384	70.301	73.411	72.466	2300
	2400	34.300	81.820	105.844	71.752	76.841	73.827	2400
	2500	34.300	85.250	107.244	73.144	80.271	75.136	2500
	2600	34.300	88.680	108.589	74.481	83.701	76.396	2600
	2700	34.300	92.110	109.884	75.769	87.131	77.613	2700
	2800	34.300	95.540	111.131	77.010	90.561	78.788	2800
	2900	34.300	98.970	112.335	78.207	93.991	79.924	2900
	3000	34.300	102.400	113.497	79.364	97.421	81.024	3000
	3100	34.300	105.830	114.622	80.483	100.851	82.090	3100
	3200	34.300	109.260	115.711	81.567	104.281	83.123	3200
	3300	34.300	112.690	116.767	82.618	107.711	84.127	3300
	3400	34.300	116.120	117.791	83.638	111.141	85.102	3400
	3500	34.300	119.550	118.785	84.628	114.571	86.050	3500
	3600	34.300	122.980	119.751	85.590	118.001	86.973	3600
	3700	34.300	126.410	120.691	86.526	121.431	87.872	3700
	3800	34.300	129.840	121.606	87.437	124.861	88.747	3800
	3900	34.300	133.270	122.497	88.325	128.291	89.601	3900
	4000	34.300	136.700	123.365	89.190	131.721	90.435	4000
	4100	34.300	140.130	124.212	90.034	135.151	91.248	4100
	4200	34.300	143.560	125.038	90.858	138.581	92.043	4200
	4300	34.300	146.990	125.846	91.662	142.011	92.820	4300
	4400	34.300	150.420	126.634	92.448	145.441	93.579	4400
	4500	34.300	153.850	127.405	93.216	148.871	94.323	4500
	4600	34.300	157.280	128.159	93.967	152.301	95.050	4600
	4700	34.300	160.710	128.896	94.703	155.731	95.762	4700
	4800	34.300	164.140	129.619	95.423	159.161	96.460	4800
	4900	34.300	167.570	130.326	96.128	162.591	97.144	4900
	5000	34.300	171.000	131.019	96.819	166.021	97.815	5000

TABLE III.28. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
5100	34.300	174.430	131.698	97.496	169.451	98.472	5100
5200	34.300	177.860	132.364	98.160	172.881	99.118	5200
5300	34.300	181.290	133.017	98.812	176.311	99.751	5300
5400	34.300	184.720	133.659	99.451	179.741	100.373	5400
5500	34.300	188.150	134.288	100.079	183.171	100.984	5500
5600	34.300	191.580	134.906	100.695	186.601	101.584	5600
5700	34.300	195.010	135.513	101.301	190.031	102.174	5700
5800	34.300	198.440	136.110	101.896	193.461	102.754	5800
5900	34.300	201.870	136.696	102.481	196.891	103.325	5900
6000	34.300	205.300	137.272	103.056	200.321	103.886	6000

TABLE III.29. - SELECTED THERMODYNAMIC FUNCTIONS FOR Mn($\alpha,\beta,\gamma,\delta,\ell$)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.994	INFINITE	0
	100	14.723	0.594	8.875	2.935	-4.400	52.875	100
	150	20.020	1.471	15.915	6.108	-3.523	39.402	150
	200	23.054	2.556	22.133	9.353	-2.438	34.323	200
	250	24.948	3.758	27.493	12.461	-1.236	32.437	250
	298.15	26.299	4.994	32.010	15.260	0.000	32.010	298.15
	300	26.347	5.043	32.173	15.363	0.049	32.010	300
	350	27.516	6.390	36.325	18.068	1.396	32.336	350
	400	28.527	7.792	40.066	20.586	2.798	33.071	400
	500	30.292	10.766	46.696	25.164	5.772	35.152	500
	550	31.108	12.301	49.622	27.257	7.307	36.337	550
	600	31.899	13.876	52.362	29.235	8.882	37.559	600
	700	33.426	17.143	57.395	32.905	12.149	40.039	700
	800	34.915	20.560	61.956	36.256	15.566	42.498	800
	900	36.384	24.125	66.153	39.347	19.131	44.896	900
α	980	37.545	27.082	69.300	41.665	22.088	46.761	980
β	980	37.572	29.308	71.572	41.665	24.314	46.761	980
	1000	37.698	30.061	72.332	42.271	25.067	47.265	1000
	1100	38.116	33.852	75.945	45.170	28.858	49.710	1100
	1200	38.535	37.684	79.279	47.876	32.690	52.037	1200
	1300	38.953	41.559	82.380	50.412	36.565	54.253	1300
β	1361	39.204	43.942	84.172	51.885	38.948	55.555	1361
γ	1361	43.095	46.064	85.731	51.885	41.070	55.555	1361
	1400	43.430	47.751	86.953	52.845	42.757	56.412	1400
γ	1412	43.514	48.273	87.324	53.136	43.279	56.673	1412
δ	1412	45.229	50.152	88.655	53.136	45.158	56.673	1412
	1500	45.982	54.167	91.413	55.302	49.173	58.631	1500
δ	1519	46.108	55.042	91.993	55.757	50.048	59.045	1519
ℓ	1519	46.024	67.100	99.931	55.757	62.106	59.045	1519
	1600	46.024	70.828	102.322	58.055	65.834	61.176	1600
	1700	46.024	75.430	105.112	60.742	70.436	63.679	1700
	1800	46.024	80.033	107.743	63.280	75.039	66.055	1800
	1900	46.024	84.635	110.231	65.687	79.641	68.315	1900
	2000	46.024	89.238	112.592	67.973	84.244	70.470	2000
	2100	46.024	93.840	114.838	70.152	88.846	72.530	2100
	2200	46.024	98.442	116.979	72.232	93.448	74.502	2200
	2300	46.024	103.045	119.024	74.222	98.051	76.394	2300
	2400	46.024	107.647	120.983	76.130	102.653	78.211	2400
	2500	46.024	112.250	122.862	77.962	107.256	79.960	2500
	2600	46.024	116.852	124.667	79.724	111.858	81.645	2600
	2700	46.024	121.454	126.404	81.421	116.460	83.271	2700
	2800	46.024	126.057	128.078	83.058	121.063	84.841	2800
	2900	46.024	130.659	129.693	84.638	125.665	86.360	2900
	3000	46.024	135.262	131.253	86.166	130.268	87.831	3000
	3100	46.024	139.864	132.762	87.645	134.870	89.256	3100
	3200	46.024	144.466	134.224	89.078	139.472	90.638	3200
	3300	46.024	149.069	135.640	90.467	144.075	91.981	3300
	3400	46.024	153.671	137.014	91.816	148.677	93.285	3400
	3500	46.024	158.274	138.348	93.127	153.280	94.554	3500
	3600	46.024	162.876	139.644	94.401	157.882	95.788	3600
	3700	46.024	167.478	140.905	95.641	162.484	96.991	3700
	3800	46.024	172.081	142.133	96.848	167.087	98.163	3800
	3900	46.024	176.683	143.328	98.025	171.689	99.305	3900
	4000	46.024	181.286	144.493	99.172	176.292	100.421	4000
	4100	46.024	185.888	145.630	100.291	180.894	101.509	4100
	4200	46.024	190.490	146.739	101.384	185.496	102.573	4200
	4300	46.024	195.093	147.822	102.452	190.099	103.613	4300
	4400	46.024	199.695	148.880	103.495	194.701	104.630	4400
	4500	46.024	204.298	149.914	104.515	199.304	105.625	4500
	4600	46.024	208.900	150.926	105.513	203.906	106.599	4600
	4700	46.024	213.502	151.916	106.490	208.508	107.552	4700
	4800	46.024	218.105	152.885	107.446	213.111	108.487	4800
	4900	46.024	222.707	153.834	108.383	217.713	109.402	4900
	5000	46.024	227.310	154.763	109.302	222.316	110.300	5000
	5100	46.024	231.912	155.675	110.202	226.918	111.181	5100
	5200	46.024	236.514	156.569	111.085	231.520	112.045	5200
	5300	46.024	241.117	157.445	111.951	236.123	112.894	5300
	5400	46.024	245.719	158.306	112.802	240.725	113.727	5400
	5500	46.024	250.322	159.150	113.637	245.328	114.545	5500
	5600	46.024	254.924	159.979	114.457	249.930	115.349	5600
	5700	46.024	259.526	160.794	115.263	254.532	116.139	5700
	5800	46.024	264.129	161.594	116.055	259.135	116.916	5800
	5900	46.024	268.731	162.381	116.833	263.737	117.680	5900
	6000	46.024	273.334	163.155	117.599	268.340	118.431	6000

TABLE III.30. - SELECTED THERMODYNAMIC FUNCTIONS FOR Mo(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.585	INFINITE	0
	100	13.495	0.491	7.026	2.116	-4.094	47.966	100
	150	18.872	1.317	13.648	4.868	-3.268	35.435	150
	200	21.507	2.334	19.478	7.808	-2.251	30.733	200
	250	23.074	3.452	24.462	10.654	-1.133	28.994	250
	298.15	23.933	4.585	28.605	13.227	0.000	28.605	298.15
	300	23.958	4.629	28.753	13.323	0.044	28.606	300
	350	24.580	5.843	32.494	15.800	1.258	28.900	350
	400	25.080	7.085	35.810	18.098	2.500	29.560	400
	450	25.500	8.350	38.789	20.233	3.765	30.422	450
	500	25.850	9.634	41.494	22.226	5.049	31.396	500
	550	26.170	10.934	43.973	24.093	6.349	32.429	550
	600	26.460	12.250	46.263	25.846	7.665	33.488	600
	700	26.980	14.923	50.382	29.063	10.338	35.613	700
	800	27.440	17.644	54.015	31.960	13.059	37.691	800
	900	27.890	20.410	57.272	34.594	15.825	39.689	900
	1000	28.370	23.223	60.235	37.012	18.638	41.597	1000
	1100	28.900	26.086	62.963	39.248	21.501	43.417	1100
	1200	29.490	29.004	65.502	41.332	24.419	45.153	1200
	1300	30.140	31.985	67.888	43.284	27.400	46.811	1300
	1400	30.860	35.035	70.148	45.123	30.450	48.398	1400
	1500	31.650	38.160	72.304	46.864	33.575	49.921	1500
	1600	32.500	41.367	74.373	48.519	36.782	51.384	1600
	1700	33.420	44.663	76.371	50.099	40.078	52.796	1700
	1800	34.420	48.054	78.309	51.612	43.469	54.160	1800
	1900	35.490	51.549	80.198	53.067	46.964	55.480	1900
	2000	36.650	55.155	82.048	54.470	50.570	56.763	2000
	2100	37.900	58.882	83.866	55.827	54.297	58.010	2100
	2200	39.240	62.737	85.659	57.142	58.152	59.226	2200
	2300	40.670	66.732	87.435	58.421	62.147	60.415	2300
	2400	42.210	70.875	89.198	59.667	66.290	61.577	2400
	2500	43.890	75.179	90.954	60.882	70.594	62.716	2500
	2600	45.880	79.664	92.713	62.073	75.079	63.836	2600
	2700	48.370	84.371	94.490	63.241	79.786	64.940	2700
	2800	51.570	89.362	96.304	64.389	84.777	66.026	2800
cr	2896	54.835	94.470	98.098	65.477	89.885	67.060	2896
ℓ	2896	37.656	130.452	110.522	65.477	125.867	67.060	2896
	2900	37.656	130.603	110.574	65.539	126.018	67.120	2900
	3000	37.656	134.369	111.851	67.061	129.784	68.590	3000
	3100	37.656	138.134	113.086	68.526	133.549	70.005	3100
	3200	37.656	141.900	114.281	69.938	137.315	71.370	3200
	3300	37.656	145.665	115.440	71.299	141.080	72.688	3300
	3400	37.656	149.431	116.564	72.614	144.846	73.962	3400
	3500	37.656	153.197	117.656	73.885	148.612	75.195	3500
	3600	37.656	156.962	118.716	75.116	152.377	76.390	3600
	3700	37.656	160.728	119.748	76.308	156.143	77.547	3700
	3800	37.656	164.493	120.752	77.465	159.908	78.671	3800
	3900	37.656	168.259	121.731	78.587	163.674	79.763	3900
	4000	37.656	172.025	122.684	79.678	167.440	80.824	4000
	4100	37.656	175.790	123.614	80.738	171.205	81.856	4100
	4200	37.656	179.556	124.521	81.770	174.971	82.861	4200
	4300	37.656	183.321	125.407	82.774	178.736	83.841	4300
	4400	37.656	187.087	126.273	83.753	182.502	84.795	4400
	4500	37.656	190.853	127.119	84.708	186.268	85.726	4500
	4600	37.656	194.618	127.947	85.639	190.033	86.635	4600
	4700	37.656	198.384	128.757	86.547	193.799	87.523	4700
	4800	37.656	202.149	129.549	87.435	197.564	88.390	4800
	4900	37.656	205.915	130.326	88.302	201.330	89.238	4900
	5000	37.656	209.681	131.087	89.151	205.096	90.068	5000
	5100	37.656	213.446	131.832	89.980	208.861	90.879	5100
	5200	37.656	217.212	132.564	90.792	212.627	91.674	5200
	5300	37.656	220.977	133.281	91.587	216.392	92.452	5300
	5400	37.656	224.743	133.985	92.366	220.158	93.215	5400
	5500	37.656	228.509	134.676	93.129	223.924	93.962	5500
	5600	37.656	232.274	135.354	93.877	227.689	94.695	5600
	5700	37.656	236.040	136.021	94.610	231.455	95.415	5700
	5800	37.656	239.805	136.676	95.330	235.220	96.120	5800
	5900	37.656	243.571	137.319	96.036	238.986	96.813	5900
	6000	37.656	247.337	137.952	96.729	242.752	97.494	6000

TABLE III.31. - SELECTED THERMODYNAMIC FUNCTIONS FOR N_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.670	INFINITE	0
100	29.104	2.902	159.811	130.791	-5.768	217.492	100
150	29.105	4.357	171.612	142.564	-4.313	200.365	150
200	29.107	5.813	179.986	150.920	-2.857	194.271	200
250	29.111	7.268	186.482	157.409	-1.402	192.090	250
298.15	29.124	8.670	191.610	162.530	0.000	191.610	298.15
300	29.125	8.724	191.790	162.709	0.054	191.610	300
350	29.165	10.181	196.282	167.193	1.511	191.965	350
400	29.249	11.641	200.182	171.079	2.971	192.754	400
500	29.580	14.581	206.740	177.578	5.911	194.918	500
600	30.109	17.564	212.177	182.903	8.894	197.353	600
700	30.754	20.607	216.866	187.427	11.937	199.813	700
800	31.433	23.716	221.017	191.372	15.046	202.209	800
900	32.090	26.892	224.758	194.878	18.222	204.511	900
1000	32.696	30.132	228.171	198.039	21.462	206.709	1000
1100	33.241	33.430	231.313	200.922	24.760	208.804	1100
1200	33.723	36.778	234.227	203.579	28.108	210.804	1200
1300	34.147	40.172	236.943	206.041	31.502	212.711	1300
1400	34.517	43.607	239.487	208.340	34.936	214.533	1400
1500	34.842	47.075	241.880	210.497	38.404	216.277	1500
1600	35.127	50.574	244.138	212.530	41.904	217.949	1600
1700	35.377	54.099	246.275	214.453	45.429	219.553	1700
1800	35.598	57.648	248.304	216.278	48.978	221.095	1800
1900	35.795	61.218	250.234	218.015	52.548	222.578	1900
2000	35.969	64.807	252.074	219.671	56.137	224.006	2000
2100	36.126	68.412	253.833	221.256	59.742	225.385	2100
2200	36.267	72.031	255.518	222.776	63.361	226.717	2200
2300	36.394	75.664	257.133	224.235	66.994	228.005	2300
2400	36.509	79.310	258.684	225.638	70.640	229.250	2400
2500	36.614	82.966	260.177	226.990	74.296	230.458	2500
2600	36.710	86.632	261.615	228.295	77.962	231.629	2600
2700	36.799	90.308	263.002	229.554	81.638	232.765	2700
2800	36.881	93.992	264.342	230.773	85.322	233.869	2800
2900	36.956	97.684	265.637	231.952	89.014	234.942	2900
3000	37.027	101.383	266.891	233.096	92.713	235.986	3000
3100	37.093	105.089	268.107	234.207	96.419	237.004	3100
3200	37.155	108.801	269.285	235.284	100.131	237.994	3200
3300	37.213	112.520	270.429	236.332	103.850	238.959	3300
3400	37.268	116.244	271.541	237.351	107.574	239.901	3400
3500	37.320	119.973	272.622	238.344	111.303	240.821	3500
3600	37.369	123.708	273.674	239.310	115.038	241.719	3600
3700	37.417	127.448	274.699	240.253	118.777	242.597	3700
3800	37.462	131.192	275.697	241.173	122.521	243.454	3800
3900	37.505	134.940	276.671	242.071	126.270	244.294	3900
4000	37.547	138.693	277.621	242.948	130.023	245.115	4000
4100	37.588	142.450	278.549	243.805	133.780	245.920	4100
4200	37.628	146.211	279.455	244.643	137.541	246.707	4200
4300	37.667	149.975	280.341	245.463	141.305	247.479	4300
4400	37.705	153.744	281.207	246.265	145.074	248.236	4400
4500	37.743	157.516	282.055	247.051	148.846	248.978	4500
4600	37.780	161.292	282.885	247.821	152.622	249.706	4600
4700	37.817	165.072	283.698	248.576	156.402	250.421	4700
4800	37.855	168.856	284.494	249.316	160.186	251.122	4800
4900	37.893	172.643	285.275	250.042	163.973	251.811	4900
5000	37.931	176.434	286.041	250.754	167.764	252.488	5000
5100	37.971	180.229	286.793	251.454	171.559	253.154	5100
5200	38.011	184.029	287.530	252.140	175.359	253.807	5200
5300	38.053	187.832	288.255	252.815	179.162	254.451	5300
5400	38.096	191.639	288.966	253.477	182.969	255.083	5400
5500	38.141	195.451	289.666	254.129	186.781	255.706	5500
5600	38.188	199.267	290.354	254.770	190.597	256.319	5600
5700	38.238	203.089	291.030	255.400	194.419	256.921	5700
5800	38.291	206.915	291.695	256.020	198.245	257.515	5800
5900	38.346	210.748	292.350	256.630	202.077	258.100	5900
6000	38.405	214.585	292.995	257.231	205.914	258.676	6000
6200	38.534	222.279	294.256	258.405	213.609	259.803	6200
6400	38.680	230.000	295.482	259.545	221.330	260.899	6400
6600	38.846	237.752	296.675	260.652	229.082	261.966	6600
6800	39.035	245.540	297.837	261.728	236.870	263.003	6800
7000	39.249	253.368	298.972	262.777	244.698	264.015	7000
7200	39.491	261.242	300.081	263.797	252.572	265.002	7200
7400	39.763	269.167	301.166	264.792	260.497	265.964	7400
7600	40.068	277.149	302.231	265.764	268.479	266.905	7600
7800	40.407	285.196	303.276	266.712	276.526	267.824	7800
8000	40.784	293.316	304.304	267.640	284.645	268.723	8000

TABLE III.31. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.198	301.513	305.316	268.546	292.843	269.604	8200
8400	41.653	309.797	306.314	269.434	301.127	270.466	8400
8600	42.147	318.176	307.300	270.303	309.506	271.311	8600
8800	42.682	326.658	308.275	271.155	317.988	272.140	8800
9000	43.258	335.252	309.240	271.990	326.582	272.953	9000
9200	43.875	343.964	310.198	272.811	335.294	273.753	9200
9400	44.532	352.804	311.148	273.616	344.134	274.538	9400
9600	45.228	361.779	312.093	274.408	353.109	275.311	9600
9800	45.960	370.897	313.033	275.187	362.227	276.071	9800
10000	46.728	380.166	313.969	275.953	371.495	276.820	10000
10500	48.781	404.035	316.298	277.819	395.365	278.644	10500
11000	50.985	428.971	318.618	279.621	420.301	280.409	11000
11500	53.274	455.033	320.934	281.366	446.363	282.120	11500
12000	55.575	482.247	323.250	283.063	473.577	283.786	12000
12500	57.811	510.598	325.565	284.718	501.928	285.411	12500
13000	59.908	540.034	327.873	286.332	531.364	286.999	13000
13500	61.796	570.471	330.170	287.913	561.801	288.556	13500
14000	63.421	601.786	332.448	289.464	593.116	290.083	14000
14500	64.741	633.841	334.697	290.984	625.171	291.582	14500
15000	65.729	666.472	336.909	292.478	657.802	293.056	15000
15500	66.375	699.512	339.077	293.947	690.842	294.506	15500
16000	66.685	732.791	341.190	295.390	724.121	295.932	16000
16500	66.674	766.143	343.243	296.810	757.473	297.335	16500
17000	66.369	799.416	345.229	298.204	790.746	298.714	17000
17500	65.803	832.468	347.145	299.575	823.798	300.070	17500
18000	65.011	865.180	348.988	300.922	856.510	301.404	18000
18500	64.033	897.448	350.756	302.245	888.778	302.714	18500
19000	62.904	929.188	352.449	303.544	920.518	304.000	19000
19500	61.660	960.333	354.067	304.819	951.662	305.263	19500
20000	60.332	990.834	355.611	306.069	982.164	306.503	20000

TABLE III.32. - SELECTED THERMODYNAMIC FUNCTIONS FOR Na(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.460	INFINITE	0
	100	22.460	1.347	23.656	10.186	-5.113	74.786	100
	200	26.000	3.802	40.539	21.529	-2.658	53.829	200
	298.15	28.230	6.460	51.300	29.633	0.000	51.300	298.15
	300	28.261	6.512	51.475	29.768	0.052	51.302	300
cr	371.01	31.509	8.614	57.752	34.534	2.154	51.946	371.01
ℓ	371.01	31.799	11.212	64.754	34.534	4.752	51.946	371.01
	400	31.532	12.130	67.137	36.812	5.670	52.962	400
	500	30.659	15.239	74.077	43.599	8.779	56.519	500
	600	29.920	18.267	79.599	49.154	11.807	59.921	600
	700	29.353	21.229	84.167	53.840	14.769	63.068	700
	800	28.973	24.144	88.059	57.879	17.684	65.954	800
	900	28.787	27.030	91.459	61.426	20.570	68.603	900
	1000	28.799	29.908	94.491	64.583	23.448	71.043	1000
	1100	29.012	32.796	97.244	67.429	26.336	73.302	1100
	1200	29.427	35.717	99.785	70.021	29.257	75.404	1200
	1300	30.045	38.689	102.163	72.402	32.229	77.371	1300
	1400	30.866	41.733	104.419	74.610	35.273	79.224	1400
	1500	31.891	44.869	106.582	76.669	38.409	80.976	1500
	1600	33.120	48.118	108.678	78.604	41.658	82.642	1600
	1700	34.553	51.499	110.728	80.434	45.039	84.234	1700
	1800	36.190	55.035	112.748	82.173	48.575	85.762	1800
	1900	38.032	58.744	114.754	83.836	52.284	87.236	1900
	2000	40.078	62.648	116.755	85.431	56.188	88.661	2000
	2100	42.328	66.767	118.765	86.971	60.307	90.047	2100
	2200	44.784	71.121	120.790	88.462	64.661	91.399	2200
	2300	47.444	75.730	122.838	89.912	69.270	92.721	2300

TABLE III.33. - SELECTED THERMODYNAMIC FUNCTIONS FOR Nb(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.241	INFINITE	0
	100	17.439	0.781	12.558	4.748	-4.460	57.158	100
	150	21.351	1.764	20.469	8.709	-3.477	43.649	150
	200	23.091	2.880	26.878	12.478	-2.361	38.683	200
	250	24.154	4.064	32.159	15.903	-1.177	36.867	250
	298.15	24.694	5.241	36.464	18.886	0.000	36.464	298.15
	300	24.711	5.287	36.616	18.993	0.046	36.463	300
	350	25.088	6.532	40.455	21.792	1.291	36.766	350
	400	25.393	7.794	43.826	24.341	2.553	37.443	400
	450	25.653	9.071	46.832	26.674	3.830	38.321	450
	500	25.899	10.359	49.548	28.830	5.118	39.312	500
	550	26.126	11.660	52.027	30.827	6.419	40.356	550
	600	26.347	12.972	54.309	32.689	7.731	41.424	600
	700	26.769	15.628	58.403	36.077	10.387	43.564	700
	800	27.183	18.325	62.004	39.098	13.084	45.649	800
	900	27.593	21.064	65.230	41.826	15.823	47.649	900
	1000	27.999	23.844	68.158	44.314	18.603	49.555	1000
	1100	28.405	26.664	70.846	46.606	21.423	51.371	1100
	1200	28.798	29.525	73.334	48.730	24.284	53.097	1200
	1300	29.179	32.423	75.654	50.713	27.182	54.745	1300
	1400	29.589	35.361	77.831	52.573	30.120	56.317	1400
	1500	30.062	38.343	79.888	54.326	33.102	57.820	1500
	1600	30.606	41.376	81.846	55.986	36.135	59.262	1600
	1700	31.221	44.467	83.719	57.562	39.226	60.645	1700
	1800	31.903	47.622	85.523	59.066	42.381	61.978	1800
	1900	32.639	50.849	87.267	60.504	45.608	63.263	1900
	2000	33.430	54.152	88.961	61.885	48.911	64.505	2000
	2100	34.275	57.537	90.612	63.213	52.296	65.709	2100
	2200	35.187	61.009	92.228	64.497	55.768	66.879	2200
	2300	36.192	64.577	93.813	65.736	59.336	68.015	2300
	2400	37.317	68.251	95.377	66.939	63.010	69.123	2400
	2500	38.635	72.046	96.926	68.108	66.805	70.204	2500
	2600	40.233	75.986	98.471	69.246	70.745	71.261	2600
	2700	42.283	80.109	100.027	70.357	74.868	72.298	2700
cr	2750	43.423	82.252	100.813	70.903	77.011	72.809	2750
ℓ	2750	33.472	109.155	110.596	70.903	103.914	72.809	2750
	2800	33.472	110.828	111.199	71.617	105.587	73.489	2800
	2900	33.472	114.176	112.374	73.003	108.935	74.810	2900
	3000	33.472	117.523	113.508	74.334	112.282	76.081	3000
	3100	33.472	120.870	114.606	75.616	115.629	77.306	3100
	3200	33.472	124.217	115.669	76.851	118.976	78.488	3200
	3300	33.472	127.564	116.699	78.043	122.323	79.631	3300
	3400	33.472	130.912	117.698	79.194	125.671	80.736	3400
	3500	33.472	134.259	118.668	80.308	129.018	81.806	3500
	3600	33.472	137.606	119.611	81.387	132.365	82.843	3600
	3700	33.472	140.953	120.528	82.433	135.712	83.849	3700
	3800	33.472	144.300	121.421	83.447	139.059	84.826	3800
	3900	33.472	147.648	122.290	84.432	142.407	85.776	3900
	4000	33.472	150.995	123.138	85.389	145.754	86.699	4000
	4100	33.472	154.342	123.964	86.320	149.101	87.598	4100
	4200	33.472	157.689	124.771	87.226	152.448	88.474	4200
	4300	33.472	161.036	125.558	88.108	155.795	89.327	4300
	4400	33.472	164.384	126.328	88.968	159.143	90.159	4400
	4500	33.472	167.731	127.080	89.807	162.490	90.971	4500
	4600	33.472	171.078	127.816	90.625	165.837	91.764	4600
	4700	33.472	174.425	128.536	91.424	169.184	92.539	4700
	4800	33.472	177.772	129.240	92.204	172.531	93.296	4800
	4900	33.472	181.120	129.930	92.967	175.879	94.037	4900
	5000	33.472	184.467	130.607	93.713	179.226	94.762	5000
	5100	33.472	187.814	131.270	94.443	182.573	95.471	5100
	5200	33.472	191.161	131.920	95.158	185.920	96.166	5200
	5300	33.472	194.508	132.557	95.857	189.267	96.846	5300
	5400	33.472	197.856	133.183	96.543	192.615	97.513	5400
	5500	33.472	201.203	133.797	97.215	195.962	98.167	5500
	5600	33.472	204.550	134.400	97.873	199.309	98.809	5600
	5700	33.472	207.897	134.992	98.519	202.656	99.439	5700
	5800	33.472	211.244	135.575	99.153	206.003	100.057	5800
	5900	33.472	214.592	136.147	99.775	209.351	100.664	5900
	6000	33.472	217.939	136.709	100.386	212.698	101.260	6000

TABLE III.34. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ne

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
100	20.786	2.079	123.622	102.836	-4.119	164.810	100
200	20.786	4.157	138.030	117.244	-2.040	148.231	200
298.15	20.786	6.197	146.330	125.543	0.000	146.330	298.15
300	20.786	6.236	146.458	125.672	0.038	146.330	300
400	20.786	8.315	152.438	131.652	2.117	147.145	400
500	20.786	10.393	157.076	136.290	4.196	148.685	500
600	20.786	12.472	160.866	140.080	6.274	150.409	600
700	20.786	14.550	164.070	143.284	8.353	152.138	700
800	20.786	16.629	166.846	146.060	10.432	153.807	800
900	20.786	18.708	169.294	148.508	12.510	155.394	900
1000	20.786	20.786	171.484	150.698	14.589	156.896	1000
1100	20.786	22.865	173.466	152.679	16.667	158.313	1100
1200	20.786	24.944	175.274	154.488	18.746	159.652	1200
1300	20.786	27.022	176.938	156.152	20.825	160.919	1300
1400	20.786	29.101	178.478	157.692	22.903	162.119	1400
1500	20.786	31.179	179.912	159.126	24.982	163.258	1500
1600	20.786	33.258	181.254	160.468	27.061	164.341	1600
1700	20.786	35.337	182.514	161.728	29.139	165.373	1700
1800	20.786	37.415	183.702	162.916	31.218	166.359	1800
1900	20.786	39.494	184.826	164.040	33.296	167.302	1900
2000	20.786	41.573	185.892	165.106	35.375	168.205	2000
2100	20.786	43.651	186.906	166.120	37.454	169.071	2100
2200	20.786	45.730	187.873	167.087	39.532	169.904	2200
2300	20.786	47.808	188.797	168.011	41.611	170.706	2300
2400	20.786	49.887	189.682	168.896	43.690	171.478	2400
2500	20.786	51.966	190.531	169.744	45.768	172.223	2500
2600	20.786	54.044	191.346	170.560	47.847	172.943	2600
2700	20.786	56.123	192.130	171.344	49.926	173.639	2700
2800	20.786	58.202	192.886	172.100	52.004	174.313	2800
2900	20.786	60.280	193.616	172.829	54.083	174.967	2900
3000	20.786	62.359	194.320	173.534	56.161	175.600	3000
3100	20.786	64.437	195.002	174.216	58.240	176.215	3100
3200	20.786	66.516	195.662	174.876	60.319	176.812	3200
3300	20.786	68.595	196.302	175.515	62.397	177.393	3300
3400	20.786	70.673	196.922	176.136	64.476	177.959	3400
3500	20.786	72.752	197.525	176.738	66.555	178.509	3500
3600	20.786	74.831	198.110	177.324	68.633	179.045	3600
3700	20.786	76.909	198.680	177.893	70.712	179.568	3700
3800	20.786	78.988	199.234	178.448	72.790	180.079	3800
3900	20.786	81.066	199.774	178.988	74.869	180.577	3900
4000	20.786	83.145	200.300	179.514	76.948	181.063	4000
4100	20.786	85.224	200.814	180.027	79.026	181.539	4100
4200	20.786	87.302	201.314	180.528	81.105	182.004	4200
4300	20.786	89.381	201.804	181.017	83.184	182.459	4300
4400	20.786	91.460	202.281	181.495	85.262	182.904	4400
4500	20.786	93.538	202.749	181.962	87.341	183.339	4500
4600	20.786	95.617	203.205	182.419	89.419	183.766	4600
4700	20.786	97.695	203.652	182.866	91.498	184.185	4700
4800	20.786	99.774	204.090	183.304	93.577	184.595	4800
4900	20.786	101.853	204.519	183.732	95.655	184.997	4900
5000	20.786	103.931	204.939	184.152	97.734	185.392	5000
5100	20.786	106.010	205.350	184.564	99.813	185.779	5100
5200	20.786	108.089	205.754	184.968	101.891	186.159	5200
5300	20.786	110.167	206.150	185.364	103.970	186.533	5300
5400	20.786	112.246	206.538	185.752	106.048	186.900	5400
5500	20.786	114.325	206.920	186.133	108.127	187.260	5500
5600	20.786	116.403	207.294	186.508	110.206	187.615	5600
5700	20.786	118.482	207.662	186.876	112.284	187.963	5700
5800	20.786	120.560	208.024	187.237	114.363	188.306	5800
5900	20.786	122.639	208.379	187.593	116.442	188.643	5900
6000	20.786	124.718	208.728	187.942	118.520	188.975	6000
6200	20.786	128.875	209.410	188.624	122.677	189.623	6200
6400	20.786	133.032	210.070	189.284	126.835	190.252	6400
6600	20.786	137.189	210.710	189.923	130.992	190.862	6600
6800	20.786	141.347	211.330	190.544	135.149	191.455	6800
7000	20.786	145.504	211.933	191.146	139.306	192.032	7000
7200	20.786	149.661	212.518	191.732	143.464	192.593	7200
7400	20.786	153.818	213.088	192.301	147.621	193.139	7400
7600	20.786	157.976	213.642	192.856	151.778	193.671	7600
7800	20.786	162.133	214.182	193.396	155.936	194.190	7800
8000	20.786	166.290	214.708	193.922	160.093	194.697	8000

TABLE III.34. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.786	170.447	215.221	194.435	164.250	195.191	8200
8400	20.786	174.605	215.722	194.936	168.407	195.674	8400
8600	20.786	178.762	216.211	195.425	172.565	196.146	8600
8800	20.786	182.919	216.689	195.903	176.722	196.607	8800
9000	20.786	187.076	217.156	196.370	180.879	197.059	9000
9200	20.786	191.234	217.613	196.827	185.036	197.501	9200
9400	20.786	195.391	218.060	197.274	189.194	197.933	9400
9600	20.786	199.548	218.498	197.712	193.351	198.357	9600
9800	20.786	203.706	218.927	198.140	197.508	198.773	9800
10000	20.787	207.863	219.347	198.560	201.665	199.180	10000
10500	20.787	218.256	220.361	199.574	212.059	200.165	10500
11000	20.788	228.650	221.328	200.541	222.452	201.105	11000
11500	20.789	239.044	222.252	201.465	232.846	202.004	11500
12000	20.792	249.439	223.137	202.350	243.242	202.867	12000
12500	20.796	259.836	223.985	203.199	253.638	203.694	12500
13000	20.804	270.235	224.801	204.014	264.038	204.491	13000
13500	20.815	280.640	225.587	204.798	274.443	205.258	13500
14000	20.834	291.052	226.344	205.554	284.854	205.997	14000
14500	20.861	301.475	227.075	206.284	295.278	206.711	14500
15000	20.897	311.912	227.783	206.989	305.714	207.402	15000
15500	20.950	322.372	228.469	207.671	316.175	208.071	15500
16000	21.007	332.847	229.134	208.331	326.650	208.718	16000
16500	21.093	343.368	229.782	208.971	337.171	209.347	16500
17000	21.175	353.901	230.410	209.593	347.703	209.957	17000
17500	21.310	364.521	231.026	210.196	358.323	210.550	17500
18000	21.343	375.027	231.617	210.782	368.830	211.127	18000
18500	21.506	385.738	232.204	211.353	379.540	211.688	18500
19000	21.703	396.539	232.780	211.910	390.341	212.236	19000
19500	21.937	407.447	233.347	212.452	401.250	212.770	19500
20000	22,214	418.483	233.906	212.982	412.286	213.291	20000

TABLE III.35. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ni(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.786	INFINITE	0
	100	13.631	0.508	7.454	2.374	-4.278	50.234	100
	150	19.305	1.346	14.170	5.197	-3.440	37.103	150
	200	22.468	2.397	20.200	8.215	-2.389	32.145	200
	250	24.397	3.571	25.432	11.148	-1.215	30.292	250
	298.15	25.987	4.786	29.870	13.818	0.000	29.870	298.15
	300	26.024	4.834	30.031	13.918	0.048	29.871	300
	350	27.294	6.167	34.139	16.519	1.381	30.193	350
	400	28.493	7.562	37.863	18.958	2.776	30.923	400
	450	29.623	9.014	41.281	21.250	4.228	31.885	450
	500	31.045	10.529	44.473	23.415	5.743	32.987	500
	550	32.761	12.123	47.510	25.468	7.337	34.170	550
	600	34.853	13.808	50.440	27.427	9.022	35.403	600
[a] cr	631	39.832	14.930	52.263	28.602	10.144	36.187	631
cr	631	39.832	14.930	52.263	28.602	10.144	36.187	631
	700	30.794	17.130	55.575	31.104	12.344	37.941	700
	800	31.003	20.217	59.697	34.426	15.431	40.408	800
	900	31.589	23.346	63.382	37.442	18.560	42.760	900
	1000	32.217	26.536	66.742	40.206	21.750	44.992	1000
	1100	32.928	29.793	69.845	42.760	25.007	47.111	1100
	1200	33.681	33.122	72.742	45.140	28.336	49.129	1200
	1300	34.518	36.532	75.471	47.369	31.746	51.051	1300
	1400	35.397	40.027	78.061	49.470	35.241	52.889	1400
	1500	36.317	43.613	80.534	51.459	38.827	54.649	1500
	1600	37.279	47.292	82.908	53.350	42.506	56.342	1600
	1700	38.284	51.072	85.199	55.157	46.286	57.972	1700
cr	1728	38.535	52.147	85.827	55.649	47.361	58.419	1728
ℓ	1728	38.911	69.302	95.754	55.649	64.516	58.419	1728
	1800	38.911	72.103	97.343	57.285	67.317	59.944	1800
	1900	38.911	75.994	99.446	59.449	71.208	61.968	1900
	2000	38.911	79.886	101.442	61.500	75.100	63.893	2000
	2100	38.911	83.777	103.341	63.447	78.991	65.726	2100
	2200	38.911	87.668	105.151	65.302	82.882	67.477	2200
	2300	38.911	91.559	106.881	67.072	86.773	69.153	2300
	2400	38.911	95.450	108.537	68.766	90.664	70.760	2400
	2500	38.911	99.341	110.125	70.389	94.555	72.303	2500
	2600	38.911	103.232	111.651	71.947	98.446	73.787	2600
	2700	38.911	107.123	113.120	73.444	102.337	75.217	2700
	2800	38.911	111.014	114.535	74.887	106.228	76.596	2800
	2900	38.911	114.905	115.900	76.278	110.119	77.928	2900
	3000	38.911	118.797	117.219	77.621	114.011	79.216	3000
	3100	38.911	122.688	118.495	78.919	117.902	80.463	3100
	3200	38.911	126.579	119.731	80.175	121.793	81.670	3200
	3300	38.911	130.470	120.928	81.392	125.684	82.842	3300
	3400	38.911	134.361	122.090	82.572	129.575	83.979	3400
	3500	38.911	138.252	123.218	83.717	133.466	85.084	3500
	3600	38.911	142.143	124.314	84.830	137.357	86.159	3600
	3700	38.911	146.034	125.380	85.911	141.248	87.205	3700
	3800	38.911	149.925	126.418	86.964	145.139	88.223	3800
	3900	38.911	153.816	127.428	87.988	149.030	89.215	3900
	4000	38.911	157.708	128.413	88.987	152.922	90.183	4000
	4100	38.911	161.599	129.374	89.960	156.813	91.127	4100
	4200	38.911	165.490	130.312	90.910	160.704	92.049	4200
	4300	38.911	169.381	131.227	91.837	164.595	92.950	4300
	4400	38.911	173.272	132.122	92.742	168.486	93.830	4400
	4500	38.911	177.163	132.996	93.627	172.377	94.690	4500
	4600	38.911	181.054	133.852	94.492	176.268	95.533	4600
	4700	38.911	184.945	134.689	95.338	180.159	96.357	4700
	4800	38.911	188.836	135.508	96.167	184.050	97.164	4800
	4900	38.911	192.727	136.310	96.978	187.941	97.955	4900
	5000	38.911	196.619	137.096	97.772	191.833	98.730	5000
	5100	38.911	200.510	137.867	98.551	195.724	99.490	5100
	5200	38.911	204.401	138.622	99.314	199.615	100.235	5200
	5300	38.911	208.292	139.363	100.063	203.506	100.966	5300
	5400	38.911	212.183	140.091	100.798	207.397	101.684	5400
	5500	38.911	216.074	140.805	101.519	211.288	102.389	5500
	5600	38.911	219.965	141.506	102.226	215.179	103.081	5600
	5700	38.911	223.856	142.195	102.922	219.070	103.761	5700
	5800	38.911	227.747	142.871	103.605	222.961	104.430	5800
	5900	38.911	231.638	143.536	104.276	226.852	105.087	5900
	6000	38.911	235.530	144.190	104.936	230.744	105.733	6000

[a]Maximum lambda transition point at 631 K.

TABLE III.36. - SELECTED THERMODYNAMIC FUNCTIONS FOR O_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.680	INFINITE	0
100	29.112	2.901	173.307	144.297	-5.779	231.098	100
150	29.120	4.357	185.111	156.066	-4.323	213.933	150
200	29.127	5.812	193.487	164.427	-2.868	207.827	200
250	29.202	7.270	199.994	170.913	-1.410	205.634	250
298.15	29.378	8.680	205.149	176.036	0.000	205.149	298.15
300	29.387	8.735	205.331	176.214	0.055	205.148	300
350	29.696	10.211	209.884	180.709	1.531	205.509	350
400	30.109	11.706	213.875	184.609	3.026	206.309	400
500	31.094	14.765	220.698	191.167	6.085	208.528	500
600	32.094	17.925	226.456	196.580	9.245	211.047	600
700	32.987	21.180	231.472	201.214	12.500	213.614	700
800	33.741	24.518	235.928	205.280	15.838	216.130	800
900	34.365	27.924	239.939	208.912	19.244	218.556	900
1000	34.881	31.387	243.588	212.201	22.707	220.881	1000
1100	35.314	34.898	246.933	215.207	26.218	223.098	1100
1200	35.683	38.448	250.022	217.982	29.768	225.215	1200
1300	36.006	42.034	252.891	220.558	33.353	227.235	1300
1400	36.297	45.649	255.570	222.964	36.968	229.164	1400
1500	36.567	49.292	258.084	225.223	40.611	231.010	1500
1600	36.822	52.962	260.452	227.351	44.282	232.776	1600
1700	37.068	56.656	262.692	229.365	47.976	234.471	1700
1800	37.308	60.375	264.817	231.276	51.695	236.098	1800
1900	37.545	64.118	266.841	233.095	55.438	237.663	1900
2000	37.780	67.884	268.772	234.830	59.204	239.170	2000
2100	38.013	71.674	270.621	236.491	62.994	240.624	2100
2200	38.244	75.487	272.395	238.083	66.807	242.029	2200
2300	38.474	79.323	274.100	239.612	70.643	243.386	2300
2400	38.701	83.181	275.742	241.084	74.501	244.700	2400
2500	38.925	87.063	277.327	242.502	78.383	245.974	2500
2600	39.146	90.966	278.858	243.871	82.286	247.210	2600
2700	39.363	94.892	280.339	245.194	86.212	248.409	2700
2800	39.575	98.839	281.775	246.476	90.159	249.576	2800
2900	39.783	102.807	283.167	247.717	94.127	250.710	2900
3000	39.985	106.795	284.519	248.921	98.115	251.814	3000
3100	40.181	110.803	285.834	250.091	102.123	252.891	3100
3200	40.372	114.831	287.112	251.228	106.151	253.940	3200
3300	40.558	118.878	288.357	252.334	110.198	254.964	3300
3400	40.737	122.943	289.571	253.412	114.263	255.965	3400
3500	40.912	127.026	290.754	254.461	118.345	256.942	3500
3600	41.080	131.126	291.910	255.486	122.445	257.897	3600
3700	41.244	135.242	293.038	256.486	126.562	258.832	3700
3800	41.402	139.374	294.140	257.462	130.694	259.746	3800
3900	41.556	143.522	295.217	258.416	134.842	260.642	3900
4000	41.706	147.685	296.271	259.349	139.005	261.519	4000
4100	41.851	151.863	297.303	260.263	143.183	262.380	4100
4200	41.992	156.055	298.313	261.157	147.375	263.223	4200
4300	42.129	160.261	299.303	262.033	151.581	264.051	4300
4400	42.262	164.480	300.273	262.891	155.800	264.864	4400
4500	42.393	168.713	301.224	263.732	160.033	265.661	4500
4600	42.520	172.959	302.157	264.557	164.279	266.444	4600
4700	42.644	177.217	303.073	265.367	168.537	267.214	4700
4800	42.764	181.487	303.972	266.162	172.807	267.970	4800
4900	42.882	185.770	304.855	266.942	177.090	268.714	4900
5000	42.997	190.063	305.722	267.709	181.383	269.445	5000
5100	43.108	194.369	306.575	268.463	185.689	270.165	5100
5200	43.216	198.685	307.413	269.204	190.005	270.873	5200
5300	43.321	203.011	308.237	269.933	194.331	271.570	5300
5400	43.422	207.349	309.048	270.650	198.669	272.257	5400
5500	43.519	211.697	309.846	271.355	203.016	272.934	5500
5600	43.612	216.053	310.631	272.050	207.372	273.600	5600
5700	43.701	220.419	311.403	272.733	211.739	274.256	5700
5800	43.785	224.793	312.164	273.406	216.113	274.903	5800
5900	43.864	229.175	312.913	274.070	220.495	275.541	5900
6000	43.939	233.565	313.651	274.723	224.885	276.170	6000
6200	44.070	242.367	315.094	276.002	233.687	277.402	6200
6400	44.178	251.192	316.495	277.246	242.512	278.602	6400
6600	44.259	260.035	317.856	278.457	251.355	279.772	6600
6800	44.313	268.893	319.178	279.635	260.213	280.911	6800
7000	44.339	277.759	320.463	280.783	269.079	282.023	7000
7200	44.334	286.626	321.712	281.903	277.946	283.108	7200
7400	44.299	295.491	322.926	282.995	286.810	284.168	7400
7600	44.234	304.344	324.106	284.061	295.664	285.203	7600
7800	44.139	313.182	325.254	285.102	304.502	286.215	7800
8000	44.014	321.997	326.370	286.120	313.317	287.205	8000

TABLE III.36. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	43.862	330.785	327.455	287.115	322.105	288.174	8200
8400	43.682	339.540	328.510	288.089	330.860	289.122	8400
8600	43.477	348.256	329.535	289.040	339.576	290.049	8600
8800	43.248	356.928	330.532	289.972	348.248	290.958	8800
9000	42.997	365.553	331.501	290.884	356.873	291.848	9000
9200	42.727	374.126	332.444	291.778	365.446	292.722	9200
9400	42.438	382.644	333.359	292.652	373.963	293.576	9400
9600	42.134	391.101	334.250	293.510	382.421	294.415	9600
9800	41.816	399.496	335.115	294.350	390.816	295.236	9800
10000	41.484	407.825	335.957	295.175	399.145	296.043	10000
10500	40.617	428.353	337.960	297.165	419.673	297.991	10500
11000	39.711	448.436	339.828	299.061	439.756	299.850	11000
11500	38.790	468.063	341.573	300.872	459.383	301.627	11500
12000	37.872	487.227	343.205	302.603	478.547	303.326	12000
12500	36.970	505.937	344.733	304.258	497.257	304.953	12500
13000	36.094	524.201	346.165	305.842	515.521	306.510	13000
13500	35.252	542.038	347.512	307.361	533.357	308.004	13500
14000	34.448	559.461	348.779	308.818	550.781	309.438	14000
14500	33.686	576.493	349.974	310.216	567.813	310.815	14500
15000	32.965	593.154	351.104	311.561	584.474	312.139	15000
15500	32.287	609.465	352.174	312.854	600.785	313.414	15500
16000	31.650	625.449	353.189	314.099	616.768	314.641	16000
16500	31.054	641.123	354.154	315.298	632.443	315.824	16500
17000	30.495	656.508	355.072	316.454	647.828	316.965	17000
17500	29.974	671.624	355.949	317.571	662.944	318.067	17500
18000	29.486	686.488	356.786	318.648	677.808	319.130	18000
18500	29.031	701.116	357.588	319.690	692.436	320.159	18500
19000	28.606	715.525	358.356	320.697	706.845	321.154	19000
19500	28.208	729.727	359.094	321.672	721.047	322.118	19500
20000	27.837	743.737	359.803	322.616	735.057	323.050	20000

TABLE III.37. - SELECTED THERMODYNAMIC FUNCTIONS FOR P(cr,white,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.360	INFINITE	0
	100	13.728	0.888	17.702	8.822	-4.472	62.422	100
	150	17.309	1.663	23.937	12.850	-3.697	48.584	150
β	195.40	21.117	2.533	28.986	16.023	-2.827	43.454	195.40
α	195.40	20.920	3.054	31.652	16.023	-2.306	43.453	195.40
	200	21.092	3.151	32.141	16.386	-2.209	43.186	200
	210	21.393	3.364	33.177	17.158	-1.996	42.682	210
	220	21.694	3.579	34.180	17.912	-1.781	42.275	220
	230	21.987	3.798	35.151	18.638	-1.562	41.942	230
	240	22.280	4.019	36.093	19.347	-1.341	41.680	240
	250	22.564	4.243	37.008	20.036	-1.117	41.476	250
	260	22.840	4.470	37.899	20.707	-0.890	41.322	260
	270	23.108	4.700	38.766	21.359	-0.660	41.210	270
	280	23.372	4.932	39.611	21.997	-0.428	41.140	280
	290	23.627	5.167	40.436	22.619	-0.193	41.102	290
	298.15	23.824	5.360	41.090	23.112	0.000	41.090	298.15
	300	23.870	5.404	41.237	23.224	0.044	41.090	300
α	317.30	24.267	5.820	42.585	24.242	0.460	41.135	317.30
ℓ	317.30	26.120	6.479	44.662	24.242	1.119	41.135	317.30
	400	26.120	8.639	50.711	29.114	3.279	42.514	400
	500	26.120	11.251	56.540	34.038	5.891	44.758	500
	600	26.120	13.863	61.302	38.197	8.503	47.130	600
	700	26.120	16.475	65.329	41.793	11.115	49.450	700
	800	26.120	19.087	68.816	44.958	13.727	51.658	800
	900	26.120	21.699	71.893	47.783	16.339	53.738	900
	1000	26.120	24.311	74.645	50.334	18.951	55.694	1000
	1100	26.120	26.923	77.134	52.659	21.563	57.532	1100
	1200	26.120	29.535	79.407	54.795	24.175	59.261	1200
	1300	26.120	32.147	81.498	56.769	26.787	60.892	1300
	1400	26.120	34.759	83.434	58.606	29.399	62.434	1400
	1500	26.120	37.371	85.236	60.322	32.011	63.895	1500
	1600	26.120	39.983	86.921	61.932	34.623	65.282	1600
	1700	26.120	42.595	88.505	63.449	37.235	66.602	1700
	1800	26.120	45.207	89.998	64.883	39.847	67.861	1800
	1900	26.120	47.819	91.410	66.242	42.459	69.063	1900
	2000	26.120	50.431	92.750	67.534	45.071	70.214	2000
	2100	26.120	53.043	94.024	68.766	47.683	71.318	2100
	2200	26.120	55.655	95.239	69.942	50.295	72.378	2200
	2300	26.120	58.267	96.401	71.067	52.907	73.397	2300
	2400	26.120	60.879	97.512	72.146	55.519	74.379	2400
	2500	26.120	63.491	98.578	73.182	58.131	75.326	2500
	2600	26.120	66.103	99.603	74.179	60.743	76.240	2600
	2700	26.120	68.715	100.589	75.139	63.355	77.124	2700
	2800	26.120	71.327	101.539	76.065	65.967	77.979	2800
	2900	26.120	73.939	102.455	76.959	68.579	78.807	2900
	3000	26.120	76.551	103.341	77.824	71.191	79.610	3000
	3100	26.120	79.163	104.197	78.661	73.803	80.390	3100
	3200	26.120	81.775	105.026	79.472	76.415	81.147	3200
	3300	26.120	84.387	105.830	80.258	79.027	81.883	3300
	3400	26.120	86.999	106.610	81.022	81.639	82.598	3400
	3500	26.120	89.611	107.367	81.764	84.251	83.295	3500
	3600	26.120	92.223	108.103	82.485	86.863	83.974	3600
	3700	26.120	94.835	108.819	83.187	89.475	84.636	3700
	3800	26.120	97.447	109.515	83.871	92.087	85.282	3800
	3900	26.120	100.059	110.194	84.537	94.699	85.912	3900
	4000	26.120	102.671	110.855	85.187	97.311	86.527	4000
	4100	26.120	105.283	111.500	85.821	99.923	87.128	4100
	4200	26.120	107.895	112.129	86.440	102.535	87.716	4200
	4300	26.120	110.507	112.744	87.045	105.147	88.291	4300
	4400	26.120	113.119	113.344	87.636	107.759	88.854	4400
	4500	26.120	115.731	113.931	88.213	110.371	89.405	4500
	4600	26.120	118.343	114.506	88.779	112.983	89.944	4600
	4700	26.120	120.955	115.067	89.332	115.595	90.473	4700
	4800	26.120	123.567	115.617	89.874	118.207	90.991	4800
	4900	26.120	126.179	116.156	90.405	120.819	91.499	4900
	5000	26.120	128.791	116.683	90.925	123.431	91.997	5000
	5100	26.120	131.403	117.201	91.435	126.043	92.486	5100
	5200	26.120	134.015	117.708	91.936	128.655	92.967	5200
	5300	26.120	136.627	118.205	92.427	131.267	93.438	5300
	5400	26.120	139.239	118.694	92.909	133.879	93.901	5400
	5500	26.120	141.851	119.173	93.382	136.491	94.356	5500
	5600	26.120	144.463	119.644	93.847	139.103	94.804	5600
	5700	26.120	147.075	120.106	94.303	141.715	95.244	5700
	5800	26.120	149.687	120.560	94.752	144.327	95.676	5800
	5900	26.120	152.299	121.007	95.193	146.939	96.102	5900
	6000	26.120	154.911	121.446	95.627	149.551	96.521	6000

TABLE III.38. - SELECTED THERMODYNAMIC FUNCTIONS FOR Pb(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.870	INFINITE	0
	100	24.430	1.766	36.899	19.239	-5.104	87.939	100
	200	25.770	4.289	54.346	32.901	-2.581	67.251	200
	298.15	26.650	6.870	64.800	41.758	0.000	64.800	298.15
	300	26.673	6.919	64.965	41.901	0.049	64.801	300
	350	27.254	8.268	69.121	45.499	1.398	65.127	350
	400	27.788	9.644	72.796	48.686	2.774	65.861	400
	450	28.295	11.046	76.098	51.551	4.176	66.818	450
	500	28.785	12.473	79.105	54.158	5.603	67.898	500
	550	29.264	13.924	81.871	56.553	7.054	69.044	550
	600	29.736	15.399	84.437	58.771	8.529	70.221	600
cr	600.65	29.742	15.419	84.469	58.799	8.549	70.237	600.65
ℓ	600.65	30.627	20.231	92.481	58.799	13.361	70.237	600.65
	700	30.313	23.258	97.146	63.920	16.388	73.734	700
	800	29.979	26.273	101.172	68.331	19.403	76.918	800
	900	29.660	29.255	104.684	72.179	22.385	79.812	900
	1000	29.369	32.206	107.794	75.588	25.336	82.458	1000
	1100	29.116	35.130	110.581	78.645	28.260	84.890	1100
	1200	28.903	38.030	113.105	81.413	31.160	87.138	1200
	1300	28.731	40.912	115.411	83.941	34.042	89.225	1300
	1400	28.602	43.778	117.535	86.265	36.908	91.172	1400
	1500	28.513	46.633	119.505	88.416	39.763	92.996	1500
	1600	28.463	49.482	121.344	90.418	42.612	94.711	1600
	1700	28.451	52.327	123.069	92.288	45.457	96.329	1700
	1800	28.475	55.173	124.695	94.044	48.303	97.860	1800
	1900	28.532	58.023	126.236	95.698	51.153	99.314	1900
	2000	28.620	60.881	127.702	97.262	54.011	100.697	2000
	2100	28.737	63.748	129.101	98.745	56.878	102.016	2100
	2200	28.881	66.629	130.441	100.155	59.759	103.278	2200
	2300	29.048	69.525	131.729	101.500	62.655	104.487	2300
	2400	29.238	72.439	132.969	102.786	65.569	105.648	2400
	2500	29.446	75.373	134.167	104.017	68.503	106.765	2500
	2600	29.671	78.329	135.326	105.199	71.459	107.841	2600
	2700	29.909	81.308	136.450	106.336	74.438	108.880	2700
	2800	30.160	84.311	137.542	107.431	77.441	109.885	2800
	2900	30.419	87.340	138.605	108.488	80.470	110.857	2900
	3000	30.684	90.395	139.641	109.509	83.525	111.799	3000
	3100	30.953	93.477	140.651	110.497	86.607	112.713	3100
	3200	31.223	96.586	141.638	111.455	89.716	113.602	3200
	3300	31.492	99.722	142.603	112.384	92.852	114.466	3300
	3400	31.757	102.884	143.547	113.287	96.014	115.308	3400
	3500	32.015	106.073	144.471	114.165	99.203	116.128	3500
	3600	32.264	109.287	145.377	115.019	102.417	116.928	3600

TABLE III.39. - SELECTED THERMODYNAMIC FUNCTIONS FOR Rb(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.489	INFINITE	0
	100	25.510	2.009	46.958	26.868	-5.480	101.758	100
	200	27.450	4.660	65.252	41.952	-2.829	79.397	200
	250	28.690	6.056	71.513	47.289	-1.433	77.245	250
	298.15	31.060	7.489	76.780	51.662	0.000	76.780	298.15
	300	31.231	7.547	76.973	51.816	0.058	76.780	300
cr	312.47	32.383	7.943	78.268	52.848	0.454	76.815	312.47
ℓ	312.47	31.801	10.135	85.283	52.848	2.646	76.815	312.47
	400	30.822	12.868	92.999	60.829	5.379	79.551	400
	500	30.484	15.930	99.831	67.971	8.441	82.949	500
	600	30.439	18.974	105.383	73.760	11.485	86.241	600
	700	30.524	22.022	110.080	78.620	14.533	89.319	700
	800	30.709	25.083	114.167	82.813	17.594	92.174	800
	900	31.012	28.167	117.800	86.503	20.678	94.824	900
	1000	31.476	31.290	121.090	89.800	23.801	97.289	1000
	1100	32.151	34.470	124.120	92.784	26.981	99.592	1100
	1200	33.094	37.729	126.955	95.514	30.240	101.755	1200
	1300	34.366	41.099	129.652	98.037	33.610	103.798	1300
	1400	36.026	44.615	132.257	100.389	37.126	105.738	1400
	1500	38.140	48.320	134.812	102.599	40.831	107.591	1500
	1600	40.768	52.261	137.354	104.691	44.772	109.371	1600
	1700	43.976	56.493	139.919	106.688	49.004	111.093	1700
	1800	47.828	61.077	142.539	108.607	53.588	112.768	1800
	1900	52.387	66.082	145.243	110.463	58.593	114.405	1900
	2000	57.719	71.581	148.063	112.272	64.092	116.017	2000
	2100	63.887	77.654	151.024	114.046	70.165	117.612	2100

TABLE III.40. - SELECTED THERMODYNAMIC FUNCTIONS FOR S(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.412	INFINITE	0
	100	12.765	0.690	12.541	5.641	-3.722	49.761	100
	200	19.360	2.332	23.659	11.999	-2.080	34.059	200
	298.15	22.690	4.412	32.070	17.272	0.000	32.070	298.15
	300	22.737	4.455	32.210	17.360	0.043	32.067	300
α	368.30	24.237	6.061	37.030	20.572	1.649	32.551	368.30
β	368.30	24.773	6.462	38.119	20.572	2.050	32.551	368.30
β	388.36	25.180	6.964	39.444	21.511	2.552	32.871	388.36
ℓ	388.36	31.710	8.685	43.875	21.511	4.273	32.871	388.36
	400	32.369	9.060	44.824	22.175	4.648	33.205	400
	428.15	36.595	10.004	47.103	23.739	5.592	34.044	428.15
	432.25	48.833	10.176	47.502	23.961	5.764	34.168	432.25
	453.15	42.472	11.121	49.638	25.096	6.709	34.833	453.15
	500	38.026	12.996	53.578	27.586	8.584	36.410	500
	550	35.614	14.830	57.076	30.112	10.418	38.134	550
	600	34.371	16.577	60.116	32.489	12.165	39.842	600
	650	33.493	18.273	62.832	34.720	13.861	41.508	650
	700	32.451	19.923	65.278	36.817	15.511	43.120	700
	717	31.992	20.471	66.052	37.501	16.059	43.654	717
	800	32.000	23.127	69.557	40.648	18.715	46.163	800
	900	32.000	26.327	73.326	44.074	21.915	48.976	900
	1000	32.000	29.527	76.697	47.170	25.115	51.582	1000
	1100	32.000	32.727	79.747	49.995	28.315	54.006	1100
	1200	32.000	35.927	82.532	52.592	31.515	56.269	1200
	1300	32.000	39.127	85.093	54.995	34.715	58.389	1300
	1400	32.000	42.327	87.464	57.231	37.915	60.382	1400
	1500	32.000	45.527	89.672	59.321	41.115	62.262	1500
	1600	32.000	48.727	91.737	61.283	44.315	64.041	1600
	1700	32.000	51.927	93.677	63.132	47.515	65.727	1700
	1800	32.000	55.127	95.506	64.880	50.715	67.331	1800
	1900	32.000	58.327	97.237	66.538	53.915	68.860	1900
	2000	32.000	61.527	98.878	68.114	57.115	70.320	2000
	2100	32.000	64.727	100.439	69.617	60.315	71.718	2100
	2200	32.000	67.927	101.928	71.052	63.515	73.057	2200
	2300	32.000	71.127	103.350	72.426	66.715	74.344	2300
	2400	32.000	74.327	104.712	73.743	69.915	75.581	2400
	2500	32.000	77.527	106.019	75.008	73.115	76.773	2500
	2600	32.000	80.727	107.274	76.225	76.315	77.922	2600
	2700	32.000	83.927	108.481	77.397	79.515	79.031	2700
	2800	32.000	87.127	109.645	78.528	82.715	80.104	2800
	2900	32.000	90.327	110.768	79.621	85.915	81.142	2900
	3000	32.000	93.527	111.853	80.677	89.115	82.148	3000
	3100	32.000	96.727	112.902	81.700	92.315	83.123	3100
	3200	32.000	99.927	113.918	82.691	95.515	84.070	3200
	3300	32.000	103.127	114.903	83.652	98.715	84.989	3300
	3400	32.000	106.327	115.858	84.585	101.915	85.883	3400
	3500	32.000	109.527	116.786	85.492	105.115	86.753	3500
	3600	32.000	112.727	117.687	86.374	108.315	87.600	3600
	3700	32.000	115.927	118.564	87.232	111.515	88.425	3700
	3800	32.000	119.127	119.417	88.068	114.715	89.229	3800
	3900	32.000	122.327	120.249	88.883	117.915	90.014	3900
	4000	32.000	125.527	121.059	89.677	121.115	90.780	4000
	4100	32.000	128.727	121.849	90.452	124.315	91.528	4100
	4200	32.000	131.927	122.620	91.209	127.515	92.259	4200
	4300	32.000	135.127	123.373	91.948	130.715	92.974	4300
	4400	32.000	138.327	124.109	92.671	133.915	93.673	4400
	4500	32.000	141.527	124.828	93.377	137.115	94.358	4500
	4600	32.000	144.727	125.531	94.069	140.315	95.028	4600
	4700	32.000	147.927	126.219	94.745	143.515	95.684	4700
	4800	32.000	151.127	126.893	95.408	146.715	96.327	4800
	4900	32.000	154.327	127.553	96.057	149.915	96.958	4900
	5000	32.000	157.527	128.199	96.694	153.115	97.576	5000
	5100	32.000	160.727	128.833	97.318	156.315	98.183	5100
	5200	32.000	163.927	129.454	97.930	159.515	98.778	5200
	5300	32.000	167.127	130.064	98.531	162.715	99.363	5300
	5400	32.000	170.327	130.662	99.120	165.915	99.937	5400
	5500	32.000	173.527	131.249	99.699	169.115	100.501	5500
	5600	32.000	176.727	131.826	100.267	172.315	101.055	5600
	5700	32.000	179.927	132.392	100.826	175.515	101.600	5700
	5800	32.000	183.127	132.949	101.375	178.715	102.136	5800
	5900	32.000	186.327	133.496	101.915	181.915	102.663	5900
	6000	32.000	189.527	134.034	102.446	185.115	103.181	6000

TABLE III.41. - SELECTED THERMODYNAMIC FUNCTIONS FOR Si(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-3.217	INFINITE	0
	100	7.280	0.267	3.828	1.158	-2.950	33.333	100
	200	15.650	1.443	11.657	4.442	-1.774	20.529	200
	250	18.126	2.305	15.471	6.251	-0.912	19.121	250
	298.15	19.789	3.217	18.810	8.019	0.000	18.810	298.15
	300	19.855	3.254	18.933	8.085	0.037	18.810	300
	400	22.301	5.377	25.023	11.580	2.160	19.624	400
	500	23.610	7.678	30.152	14.796	4.461	21.231	500
	600	24.472	10.085	34.537	17.730	6.867	23.092	600
	700	25.124	12.566	38.361	20.410	9.348	25.006	700
	800	25.662	15.106	41.752	22.870	11.888	26.891	800
	900	26.135	17.696	44.802	25.140	14.478	28.715	900
	1000	26.568	20.331	47.578	27.247	17.114	30.464	1000
	1100	26.974	23.009	50.130	29.213	19.791	32.138	1100
	1200	27.362	25.725	52.493	31.055	22.508	33.737	1200
	1300	27.737	28.481	54.698	32.790	25.263	35.265	1300
	1400	28.103	31.273	56.767	34.430	28.055	36.728	1400
	1500	28.462	34.101	58.719	35.985	30.883	38.130	1500
	1600	28.816	36.965	60.567	37.464	33.747	39.475	1600
cr	1690	29.131	39.572	62.152	38.737	36.355	40.640	1690
ℓ	1690	27.200	89.782	91.862	38.737	86.565	40.640	1690
	1700	27.200	90.054	92.023	39.050	86.837	40.942	1700
	1800	27.200	92.774	93.578	42.036	89.557	43.824	1800
	1900	27.200	95.494	95.048	44.788	92.277	46.481	1900
	2000	27.200	98.214	96.443	47.336	94.997	48.945	2000
	2100	27.200	100.934	97.770	49.706	97.717	51.239	2100
	2200	27.200	103.654	99.036	51.920	100.437	53.383	2200
	2300	27.200	106.374	100.245	53.995	103.157	55.394	2300
	2400	27.200	109.094	101.402	55.946	105.877	57.287	2400
	2500	27.200	111.814	102.513	57.787	108.597	59.074	2500
	2600	27.200	114.534	103.580	59.528	111.317	60.765	2600
	2700	27.200	117.254	104.606	61.179	114.037	62.370	2700
	2800	27.200	119.974	105.595	62.747	116.757	63.896	2800
	2900	27.200	122.694	106.550	64.241	119.477	65.351	2900
	3000	27.200	125.414	107.472	65.667	122.197	66.740	3000
	3100	27.200	128.134	108.364	67.030	124.917	68.068	3100
	3200	27.200	130.854	109.227	68.335	127.637	69.341	3200
	3300	27.200	133.574	110.064	69.587	130.357	70.562	3300
	3400	27.200	136.294	110.876	70.790	133.077	71.736	3400
	3500	27.200	139.014	111.665	71.946	135.797	72.866	3500
	3600	27.200	141.734	112.431	73.060	138.517	73.954	3600
	3700	27.200	144.454	113.176	74.135	141.237	75.004	3700
	3800	27.200	147.174	113.902	75.172	143.957	76.018	3800
	3900	27.200	149.894	114.608	76.174	146.677	76.999	3900
	4000	27.200	152.614	115.297	77.143	149.397	77.948	4000
	4100	27.200	155.334	115.969	78.082	152.117	78.867	4100
	4200	27.200	158.054	116.624	78.992	154.837	79.758	4200
	4300	27.200	160.774	117.264	79.875	157.557	80.623	4300
	4400	27.200	163.494	117.889	80.732	160.277	81.463	4400
	4500	27.200	166.214	118.501	81.564	162.997	82.279	4500
	4600	27.200	168.934	119.098	82.374	165.717	83.073	4600
	4700	27.200	171.654	119.683	83.161	168.437	83.846	4700
	4800	27.200	174.374	120.256	83.928	171.157	84.598	4800
	4900	27.200	177.094	120.817	84.675	173.877	85.332	4900
	5000	27.200	179.814	121.366	85.404	176.597	86.047	5000
	5100	27.200	182.534	121.905	86.114	179.317	86.745	5100
	5200	27.200	185.254	122.433	86.807	182.037	87.426	5200
	5300	27.200	187.974	122.951	87.484	184.757	88.092	5300
	5400	27.200	190.694	123.460	88.146	187.477	88.742	5400
	5500	27.200	193.414	123.959	88.793	190.197	89.378	5500
	5600	27.200	196.134	124.449	89.425	192.917	90.000	5600
	5700	27.200	198.854	124.930	90.044	195.637	90.608	5700
	5800	27.200	201.574	125.403	90.649	198.357	91.204	5800
	5900	27.200	204.294	125.868	91.242	201.077	91.788	5900
	6000	27.200	207.014	126.326	91.823	203.797	92.359	6000

TABLE III.42. - SELECTED THERMODYNAMIC FUNCTIONS FOR Sn(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.323	INFINITE	0
	100	22.210	1.318	24.020	10.840	-5.005	74.070	100
	200	25.500	3.740	40.670	21.970	-2.583	53.585	200
	298.15	27.112	6.323	51.180	29.973	0.000	51.180	298.15
	300	27.147	6.374	51.348	30.101	0.051	51.178	300
	350	28.025	7.754	55.599	33.445	1.431	51.510	350
	400	28.903	9.176	59.398	36.458	2.853	52.265	400
	450	29.887	10.646	62.858	39.200	4.323	53.251	450
	500	31.033	12.168	66.065	41.729	5.845	54.375	500
cr	505.12	31.160	12.327	66.381	41.976	6.004	54.494	505.12
ℓ	505.12	29.415	19.522	80.626	41.976	13.199	54.494	505.12
	600	28.663	22.274	85.619	48.496	15.951	59.034	600
	700	28.249	25.117	90.003	54.121	18.794	63.154	700
	800	28.043	27.931	93.760	58.847	21.608	66.751	800
	900	27.957	30.730	97.057	62.913	24.407	69.938	900
	1000	27.945	33.524	100.002	66.477	27.201	72.800	1000
	1100	27.979	36.320	102.666	69.648	29.997	75.396	1100
	1200	28.044	39.121	105.103	72.502	32.798	77.772	1200
	1300	28.130	41.930	107.351	75.098	35.607	79.962	1300
	1400	28.229	44.748	109.440	77.477	38.425	81.993	1400
	1500	28.339	47.576	111.391	79.674	41.253	83.889	1500
	1600	28.455	50.416	113.223	81.714	44.093	85.666	1600
	1700	28.575	53.267	114.952	83.619	46.944	87.338	1700
	1800	28.698	56.131	116.589	85.405	49.808	88.918	1800
	1900	28.822	59.007	118.144	87.088	52.684	90.416	1900
	2000	28.947	61.895	119.625	88.678	55.572	91.839	2000
	2100	29.071	64.796	121.041	90.186	58.473	93.196	2100
	2200	29.195	67.709	122.396	91.619	61.386	94.493	2200
	2300	29.318	70.635	123.696	92.986	64.312	95.735	2300
	2400	29.439	73.573	124.947	94.291	67.250	96.926	2400
	2500	29.559	76.523	126.151	95.542	70.200	98.071	2500
	2600	29.676	79.484	127.313	96.742	73.161	99.174	2600
	2700	29.792	82.458	128.435	97.895	76.135	100.237	2700
	2800	29.905	85.443	129.520	99.005	79.120	101.263	2800
	2900	30.015	88.439	130.572	100.075	82.116	102.256	2900
	3000	30.123	91.446	131.591	101.109	85.123	103.217	3000
	3100	30.228	94.463	132.580	102.108	88.140	104.148	3100
	3200	30.331	97.491	133.542	103.076	91.168	105.052	3200
	3300	30.431	100.529	134.477	104.013	94.206	105.929	3300
	3400	30.528	103.577	135.386	104.923	97.254	106.782	3400
	3500	30.622	106.635	136.273	105.806	100.312	107.612	3500
	3600	30.713	109.701	137.137	106.664	103.378	108.420	3600
	3700	30.801	112.777	137.979	107.499	106.454	109.208	3700
	3800	30.886	115.862	138.802	108.312	109.539	109.976	3800
	3900	30.968	118.954	139.605	109.104	112.631	110.725	3900
	4000	31.047	122.055	140.390	109.877	115.732	111.457	4000
	4100	31.123	125.164	141.158	110.630	118.841	112.172	4100
	4200	31.196	128.280	141.909	111.366	121.957	112.872	4200
	4300	31.266	131.403	142.644	112.085	125.080	113.555	4300
	4400	31.333	134.533	143.363	112.788	128.210	114.225	4400
	4500	31.396	137.669	144.068	113.475	131.346	114.880	4500
	4600	31.457	140.812	144.759	114.148	134.489	115.522	4600
	4700	31.514	143.960	145.436	114.806	137.637	116.151	4700

TABLE III.43. - SELECTED THERMODYNAMIC FUNCTIONS FOR Sr(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.558	INFINITE	0
	100	23.596	1.489	27.350	12.461	-5.069	78.044	100
	120	24.250	1.968	31.712	15.315	-4.591	69.968	120
	140	24.773	2.458	35.491	17.934	-4.100	64.778	140
	160	25.188	2.958	38.827	20.341	-3.600	61.330	160
	180	25.515	3.465	41.814	22.564	-3.093	58.999	180
	200	25.777	3.978	44.516	24.626	-2.580	57.417	200
	220	25.995	4.496	46.983	26.548	-2.063	56.358	220
	240	26.192	5.018	49.254	28.347	-1.541	55.673	240
	260	26.388	5.543	51.358	30.037	-1.015	55.261	260
	280	26.606	6.073	53.321	31.631	-0.485	55.053	280
	298.15	26.830	6.558	54.999	33.003	0.000	54.999	298.15
	300	26.837	6.608	55.165	33.139	0.050	55.000	300
	350	27.376	7.964	59.344	36.591	1.405	55.328	350
	400	27.846	9.344	63.031	39.670	2.786	56.065	400
	450	28.271	10.747	66.335	42.452	4.189	57.026	450
	500	28.665	12.171	69.335	44.993	5.613	58.109	500
	600	29.386	15.074	74.626	49.502	8.516	60.433	600
	700	30.038	18.046	79.205	53.425	11.488	62.794	700
	800	30.635	21.080	83.256	56.906	14.522	65.104	800
α	820	30.748	21.694	84.014	57.558	15.136	65.556	820
β	820	29.824	22.544	85.050	57.558	15.986	65.556	820
	900	30.146	24.943	87.841	60.127	18.384	67.414	900
	1000	30.548	27.977	91.038	63.061	21.419	69.619	1000
β	1041	30.713	29.233	92.269	64.187	22.675	70.487	1041
ℓ	1041	37.000	37.233	99.954	64.187	30.675	70.487	1041
	1100	37.000	39.416	101.994	66.161	32.858	72.123	1100
	1200	37.000	43.116	105.213	69.283	36.558	74.748	1200
	1300	37.000	46.816	108.175	72.162	40.258	77.207	1300
	1400	37.000	50.516	110.917	74.834	43.958	79.518	1400
	1500	37.000	54.216	113.470	77.325	47.658	81.698	1500
	1600	37.000	57.916	115.857	79.660	51.358	83.759	1600
	1700	37.000	61.616	118.101	81.856	55.058	85.714	1700
	1800	37.000	65.316	120.215	83.929	58.758	87.572	1800
	1900	37.000	69.016	122.216	85.892	62.458	89.343	1900
	2000	37.000	72.716	124.114	87.756	66.158	91.035	2000
	2100	37.000	76.416	125.919	89.530	69.858	92.653	2100
	2200	37.000	80.116	127.640	91.224	73.558	94.205	2200
	2300	37.000	83.816	129.285	92.843	77.258	95.695	2300
	2400	37.000	87.516	130.860	94.395	80.958	97.127	2400
	2500	37.000	91.216	132.370	95.884	84.658	98.507	2500
	2600	37.000	94.916	133.821	97.315	88.358	99.837	2600
	2700	37.000	98.616	135.218	98.693	92.058	101.122	2700
	2800	37.000	102.316	136.563	100.022	95.758	102.364	2800
	2900	37.000	106.016	137.862	101.304	99.458	103.566	2900
	3000	37.000	109.716	139.116	102.544	103.158	104.730	3000
	3100	37.000	113.416	140.329	103.743	106.858	105.859	3100
	3200	37.000	117.116	141.504	104.905	110.558	106.955	3200
	3300	37.000	120.816	142.642	106.032	114.258	108.019	3300
	3400	37.000	124.516	143.747	107.125	117.958	109.054	3400
	3500	37.000	128.216	144.820	108.186	121.658	110.060	3500
	3600	37.000	131.916	145.862	109.219	125.358	111.040	3600
	3700	37.000	135.616	146.876	110.223	129.058	111.995	3700
	3800	37.000	139.316	147.862	111.200	132.758	112.926	3800
	3900	37.000	143.016	148.823	112.153	136.458	113.834	3900
	4000	37.000	146.716	149.760	113.081	140.158	114.721	4000
	4100	37.000	150.416	150.674	113.987	143.858	115.587	4100
	4200	37.000	154.116	151.565	114.871	147.558	116.433	4200
	4300	37.000	157.816	152.436	115.735	151.258	117.260	4300
	4400	37.000	161.516	153.287	116.578	154.958	118.069	4400
	4500	37.000	165.216	154.118	117.403	158.658	118.861	4500
	4600	37.000	168.916	154.931	118.211	162.358	119.636	4600
	4700	37.000	172.616	155.727	119.000	166.058	120.396	4700
	4800	37.000	176.316	156.506	119.774	169.758	121.140	4800
	4900	37.000	180.016	157.269	120.531	173.458	121.869	4900
	5000	37.000	183.716	158.017	121.273	177.158	122.585	5000
	5100	37.000	187.416	158.749	122.001	180.858	123.287	5100
	5200	37.000	191.116	159.468	122.715	184.558	123.976	5200
	5300	37.000	194.816	160.172	123.415	188.258	124.652	5300
	5400	37.000	198.516	160.864	124.102	191.958	125.316	5400
	5500	37.000	202.216	161.543	124.776	195.658	125.969	5500
	5600	37.000	205.916	162.210	125.439	199.358	126.610	5600
	5700	37.000	209.616	162.865	126.090	203.058	127.240	5700
	5800	37.000	213.316	163.508	126.729	206.758	127.860	5800
	5900	37.000	217.016	164.141	127.358	210.458	128.470	5900
	6000	37.000	220.716	164.762	127.976	214.158	129.069	6000

TABLE III.44. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ta(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.681	INFINITE	0
	100	19.744	0.995	16.143	6.193	-4.686	63.003	100
	150	22.814	2.072	24.833	11.020	-3.609	48.893	150
	200	24.085	3.247	31.586	15.351	-2.434	43.756	200
	250	24.861	4.472	37.049	19.161	-1.209	41.885	250
	298.15	25.295	5.681	41.471	22.417	0.000	41.471	298.15
	300	25.307	5.728	41.628	22.535	0.047	41.471	300
	350	25.598	7.001	45.552	25.549	1.320	41.781	350
	400	25.840	8.287	48.986	28.268	2.606	42.471	400
	450	26.088	9.585	52.044	30.744	3.904	43.368	450
	500	26.349	10.896	54.806	33.014	5.215	44.376	500
	550	26.606	12.220	57.330	35.112	6.539	45.441	550
	600	26.843	13.556	59.655	37.062	7.875	46.530	600
	700	27.214	16.260	63.822	40.593	10.579	48.709	700
	800	27.459	18.994	67.473	43.730	13.313	50.832	800
	900	27.668	21.750	70.718	46.551	16.069	52.864	900
	1000	27.933	24.529	73.647	49.118	18.848	54.799	1000
	1100	28.281	27.340	76.325	51.470	21.659	56.635	1100
	1200	28.662	30.188	78.802	53.645	24.507	58.379	1200
	1300	28.989	33.071	81.110	55.671	27.390	60.041	1300
	1400	29.202	35.982	83.267	57.566	30.301	61.623	1400
	1500	29.319	38.908	85.286	59.347	33.227	63.135	1500
	1600	29.439	41.845	87.182	61.029	36.164	64.579	1600
	1700	29.688	44.800	88.973	62.620	39.119	65.962	1700
	1800	30.124	47.789	90.682	64.133	42.108	67.289	1800
	1900	30.665	50.829	92.325	65.573	45.148	68.563	1900
	2000	31.191	53.921	93.911	66.951	48.240	69.791	2000
	2100	31.713	57.067	95.445	68.270	51.386	70.975	2100
	2200	32.252	60.265	96.933	69.540	54.584	72.122	2200
	2300	32.828	63.518	98.379	70.762	57.837	73.232	2300
	2400	33.459	66.832	99.789	71.942	61.151	74.309	2400
	2500	34.167	70.213	101.169	73.084	64.532	75.356	2500
	2600	34.970	73.669	102.525	74.191	67.988	76.376	2600
	2700	35.890	77.211	103.861	75.264	71.530	77.368	2700
	2800	36.946	80.851	105.185	76.310	75.170	78.339	2800
	2900	38.158	84.605	106.502	77.328	78.924	79.287	2900
	3000	39.546	88.489	107.819	78.323	82.808	80.216	3000
	3100	41.130	92.521	109.141	79.296	86.840	81.128	3100
	3200	42.930	96.722	110.474	80.248	91.041	82.024	3200
cr	3258	44.080	99.245	111.256	80.794	93.564	82.538	3258
ℓ	3258	41.840	135.813	122.480	80.794	130.132	82.538	3258
	3300	41.840	137.570	123.016	81.328	131.889	83.049	3300
	3400	41.840	141.754	124.265	82.572	136.073	84.243	3400
	3500	41.840	145.938	125.478	83.781	140.257	85.404	3500
	3600	41.840	150.122	126.656	84.956	144.441	86.534	3600
	3700	41.840	154.306	127.803	86.098	148.625	87.634	3700
	3800	41.840	158.490	128.919	87.211	152.809	88.706	3800
	3900	41.840	162.674	130.005	88.294	156.993	89.751	3900
	4000	41.840	166.858	131.065	89.350	161.177	90.770	4000
	4100	41.840	171.042	132.098	90.380	165.361	91.766	4100
	4200	41.840	175.226	133.106	91.386	169.545	92.738	4200
	4300	41.840	179.410	134.091	92.367	173.729	93.688	4300
	4400	41.840	183.594	135.052	93.327	177.913	94.618	4400
	4500	41.840	187.778	135.993	94.264	182.097	95.527	4500
	4600	41.840	191.962	136.912	95.181	186.281	96.416	4600
	4700	41.840	196.146	137.812	96.079	190.465	97.288	4700
	4800	41.840	200.330	138.693	96.958	194.649	98.141	4800
	4900	41.840	204.514	139.556	97.818	198.833	98.978	4900
	5000	41.840	208.698	140.401	98.661	203.017	99.798	5000
	5100	41.840	212.882	141.230	99.488	207.201	100.602	5100
	5200	41.840	217.066	142.042	100.299	211.385	101.391	5200
	5300	41.840	221.250	142.839	101.094	215.569	102.166	5300
	5400	41.840	225.434	143.621	101.874	219.753	102.926	5400
	5500	41.840	229.618	144.389	102.640	223.937	103.673	5500
	5600	41.840	233.802	145.143	103.392	228.121	104.407	5600
	5700	41.840	237.986	145.883	104.131	232.305	105.128	5700
	5800	41.840	242.170	146.611	104.857	236.489	105.837	5800
	5900	41.840	246.354	147.326	105.571	240.673	106.534	5900
	6000	41.840	250.538	148.029	106.273	244.857	107.220	6000

TABLE III.45. - SELECTED THERMODYNAMIC FUNCTIONS FOR Th(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.350	INFINITE	0
	100	22.690	1.393	24.814	10.884	-4.957	74.384	100
	200	25.260	3.820	41.541	22.441	-2.530	54.191	200
	298.15	26.230	6.350	51.830	30.532	0.000	51.830	298.15
	300	26.245	6.399	51.992	30.662	0.049	51.829	300
	400	27.084	9.065	59.656	36.993	2.715	52.868	400
	500	27.953	11.816	65.793	42.161	5.466	54.861	500
	600	28.834	14.656	70.967	46.540	8.306	57.124	600
	700	29.720	17.583	75.478	50.359	11.233	59.431	700
	800	30.609	20.600	79.505	53.755	14.250	61.692	800
	900	31.500	23.705	83.162	56.823	17.355	63.879	900
	1000	32.391	26.900	86.527	59.627	20.550	65.977	1000
	1100	33.284	30.183	89.656	62.217	23.833	67.990	1100
	1200	34.177	33.556	92.590	64.627	27.206	69.918	1200
	1300	35.070	37.019	95.361	66.885	30.669	71.769	1300
	1400	35.964	40.570	97.993	69.014	34.220	73.550	1400
	1500	36.858	44.212	100.504	71.029	37.862	75.263	1500
	1600	37.751	47.942	102.912	72.948	41.592	76.917	1600
α	1650	38.198	49.841	104.080	73.873	43.491	77.722	1650
β	1650	35.419	53.341	106.201	73.873	46.991	77.722	1650
	1700	36.017	55.127	107.268	74.840	48.777	78.576	1700
	1800	37.212	58.788	109.360	76.700	52.438	80.228	1800
	1900	38.407	62.569	111.404	78.473	56.219	81.815	1900
	2000	39.602	66.469	113.404	80.169	60.119	83.344	2000
β	2023	39.877	67.383	113.858	80.550	61.033	83.689	2023
ℓ	2023	46.000	81.183	120.680	80.550	74.833	83.689	2023
	2100	46.000	84.725	122.399	82.053	78.375	85.077	2100
	2200	46.000	89.325	124.539	83.936	82.975	86.822	2200
	2300	46.000	93.925	126.583	85.746	87.575	88.507	2300
	2400	46.000	98.525	128.541	87.489	92.175	90.135	2400
	2500	46.000	103.125	130.419	89.169	96.775	91.709	2500
	2600	46.000	107.725	132.223	90.790	101.375	93.232	2600
	2700	46.000	112.325	133.959	92.357	105.975	94.709	2700
	2800	46.000	116.925	135.632	93.873	110.575	96.141	2800
	2900	46.000	121.525	137.246	95.341	115.175	97.531	2900
	3000	46.000	126.125	138.806	96.764	119.775	98.881	3000
	3100	46.000	130.725	140.314	98.145	124.375	100.193	3100
	3200	46.000	135.325	141.774	99.485	128.975	101.470	3200
	3300	46.000	139.925	143.190	100.788	133.575	102.713	3300
	3400	46.000	144.525	144.563	102.056	138.175	103.923	3400
	3500	46.000	149.125	145.897	103.289	142.775	105.104	3500
	3600	46.000	153.725	147.193	104.491	147.375	106.255	3600
	3700	46.000	158.325	148.453	105.662	151.975	107.378	3700
	3800	46.000	162.925	149.680	106.804	156.575	108.476	3800
	3900	46.000	167.525	150.874	107.919	161.175	109.547	3900
	4000	46.000	172.125	152.039	109.008	165.775	110.595	4000
	4100	46.000	176.725	153.175	110.071	170.375	111.620	4100
	4200	46.000	181.325	154.283	111.111	174.975	112.623	4200
	4300	46.000	185.925	155.366	112.127	179.575	113.604	4300
	4400	46.000	190.525	156.423	113.122	184.175	114.565	4400
	4500	46.000	195.125	157.457	114.096	188.775	115.507	4500
	4600	46.000	199.725	158.468	115.050	193.375	116.430	4600
	4700	46.000	204.325	159.457	115.984	197.975	117.335	4700
	4800	46.000	208.925	160.426	116.900	202.575	118.223	4800
	4900	46.000	213.525	161.374	117.798	207.175	119.094	4900
	5000	46.000	218.125	162.304	118.679	211.775	119.949	5000
	5100	46.000	222.725	163.215	119.543	216.375	120.788	5100
	5200	46.000	227.325	164.108	120.391	220.975	121.613	5200
	5300	46.000	231.925	164.984	121.225	225.575	122.423	5300
	5400	46.000	236.525	165.844	122.043	230.175	123.219	5400
	5500	46.000	241.125	166.688	122.847	234.775	124.002	5500
	5600	46.000	245.725	167.517	123.637	239.375	124.771	5600
	5700	46.000	250.325	168.331	124.414	243.975	125.528	5700
	5800	46.000	254.925	169.131	125.178	248.575	126.273	5800
	5900	46.000	259.525	169.917	125.930	253.175	127.006	5900
	6000	46.000	264.125	170.690	126.670	257.775	127.728	6000

TABLE III.46. - SELECTED THERMODYNAMIC FUNCTIONS FOR Ti(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.824	INFINITE	0
	100	14.310	0.559	8.229	2.639	-4.265	50.879	100
	200	22.300	2.477	21.204	8.819	-2.347	32.939	200
	298.15	25.060	4.824	30.720	14.540	0.000	30.720	298.15
	300	25.095	4.870	30.875	14.642	0.046	30.722	300
	400	26.380	7.451	38.291	19.663	2.627	31.723	400
	500	27.349	10.137	44.281	24.007	5.313	33.655	500
	600	28.411	12.925	49.360	27.818	8.101	35.858	600
	700	29.511	15.821	53.822	31.221	10.997	38.112	700
	800	30.456	18.822	57.828	34.300	13.998	40.330	800
	900	31.002	21.899	61.452	37.120	17.075	42.480	900
	1000	32.681	25.045	64.764	39.719	20.221	44.543	1000
	1100	39.222	28.597	68.146	42.149	23.773	46.534	1100
α	1156	45.189	30.953	70.233	43.457	26.129	47.630	1156
β	1156	27.975	34.753	73.520	43.457	29.929	47.630	1156
	1200	28.565	35.997	74.576	44.578	31.173	48.598	1200
	1300	29.952	38.922	76.917	46.977	34.098	50.688	1300
	1400	31.402	41.989	79.189	49.197	37.165	52.643	1400
	1500	32.916	45.204	81.407	51.271	40.380	54.487	1500
	1600	34.494	48.574	83.581	53.222	43.750	56.237	1600
	1700	36.136	52.105	85.721	55.071	47.281	57.909	1700
	1800	37.841	55.804	87.835	56.833	50.980	59.513	1800
	1900	39.611	59.676	89.928	58.520	54.852	61.059	1900
β	1944	40.409	61.436	90.844	59.241	56.612	61.723	1944
ℓ	1944	46.800	76.036	98.354	59.241	71.212	61.723	1944
	2000	46.800	78.657	99.683	60.355	73.833	62.767	2000
	2100	46.800	83.337	101.967	62.283	78.513	64.580	2100
	2200	46.800	88.017	104.144	64.136	83.193	66.329	2200
	2300	46.800	92.697	106.224	65.921	87.873	68.019	2300
	2400	46.800	97.377	108.216	67.642	92.553	69.652	2400
	2500	46.800	102.057	110.126	69.304	97.233	71.233	2500
	2600	46.800	106.737	111.962	70.909	101.913	72.765	2600
	2700	46.800	111.417	113.728	72.463	106.593	74.249	2700
	2800	46.800	116.097	115.430	73.967	111.273	75.690	2800
	2900	46.800	120.777	117.072	75.425	115.953	77.089	2900
	3000	46.800	125.457	118.659	76.840	120.633	78.448	3000
	3100	46.800	130.137	120.194	78.214	125.313	79.770	3100
	3200	46.800	134.817	121.679	79.549	129.993	81.057	3200
	3300	46.800	139.497	123.120	80.848	134.673	82.310	3300
	3400	46.800	144.177	124.517	82.112	139.353	83.531	3400
	3500	46.800	148.857	125.873	83.343	144.033	84.721	3500
	3600	46.800	153.537	127.192	84.543	148.713	85.883	3600
	3700	46.800	158.217	128.474	85.713	153.393	87.017	3700
	3800	46.800	162.897	129.722	86.855	158.073	88.124	3800
	3900	46.800	167.577	130.938	87.969	162.753	89.206	3900
	4000	46.800	172.257	132.123	89.058	167.433	90.264	4000
	4100	46.800	176.937	133.278	90.123	172.113	91.300	4100
	4200	46.800	181.617	134.406	91.164	176.793	92.312	4200
	4300	46.800	186.297	135.507	92.182	181.473	93.304	4300
	4400	46.800	190.977	136.583	93.179	186.153	94.276	4400
	4500	46.800	195.657	137.635	94.156	190.833	95.228	4500
	4600	46.800	200.337	138.663	95.112	195.513	96.161	4600
	4700	46.800	205.017	139.670	96.049	200.193	97.076	4700
	4800	46.800	209.697	140.655	96.968	204.873	97.973	4800
	4900	46.800	214.377	141.620	97.870	209.553	98.854	4900
	5000	46.800	219.057	142.566	98.754	214.233	99.719	5000
	5100	46.800	223.737	143.492	99.623	218.913	100.568	5100
	5200	46.800	228.417	144.401	100.475	223.593	101.403	5200
	5300	46.800	233.097	145.293	101.312	228.273	102.222	5300
	5400	46.800	237.777	146.168	102.135	232.953	103.028	5400
	5500	46.800	242.457	147.026	102.943	237.633	103.820	5500
	5600	46.800	247.137	147.870	103.738	242.313	104.599	5600
	5700	46.800	251.817	148.698	104.519	246.993	105.366	5700
	5800	46.800	256.497	149.512	105.288	251.673	106.120	5800
	5900	46.800	261.177	150.312	106.045	256.353	106.862	5900
	6000	46.800	265.857	151.098	106.789	261.033	107.593	6000

TABLE III.47. - SELECTED THERMODYNAMIC FUNCTIONS FOR U(α,β,γ,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.364	INFINITE	0
	100	22.240	1.299	22.740	9.750	-5.065	73.390	100
	200	25.830	3.738	39.500	20.810	-2.626	52.630	200
	298.15	27.665	6.364	50.200	28.855	0.000	50.200	298.15
	300	27.703	6.415	50.371	28.988	0.051	50.201	300
	400	29.699	9.285	58.613	35.400	2.921	51.310	400
	500	31.952	12.364	65.475	40.747	6.000	53.475	500
	600	34.652	15.690	71.531	45.381	9.326	55.988	600
	700	37.864	19.312	77.108	49.519	12.948	58.611	700
	800	41.614	23.281	82.402	53.301	16.917	61.256	800
	900	45.916	27.653	87.547	56.821	21.289	63.893	900
α	942	47.889	29.622	89.685	58.239	23.258	64.995	942
β	942	42.400	32.402	92.636	58.239	26.038	64.995	942
	1000	42.400	34.861	95.170	60.308	28.497	66.672	1000
β	1049	42.400	36.939	97.198	61.984	30.575	68.051	1049
γ	1049	38.300	41.669	101.707	61.984	35.305	68.051	1049
	1100	38.300	43.622	103.525	63.868	37.258	69.654	1100
	1200	38.300	47.452	106.858	67.314	41.088	72.617	1200
	1300	38.300	51.282	109.923	70.475	44.918	75.371	1300
	1400	38.300	55.112	112.762	73.396	48.748	77.941	1400
γ	1408	38.300	55.419	112.980	73.620	49.055	78.140	1408
ℓ	1408	47.739	64.139	119.173	73.620	57.775	78.140	1408
	1500	47.912	68.539	122.200	76.507	62.175	80.750	1500
	1600	48.124	73.340	125.299	79.462	66.976	83.439	1600
	1700	48.355	78.164	128.223	82.244	71.800	85.988	1700
	1800	48.600	83.012	130.994	84.876	76.648	88.412	1800
	1900	48.858	87.885	133.629	87.374	81.521	90.723	1900
	2000	49.125	92.784	136.141	89.749	86.420	92.931	2000
	2100	49.401	97.710	138.545	92.016	91.346	95.047	2100
	2200	49.682	102.664	140.849	94.184	96.300	97.076	2200
	2300	49.969	107.646	143.064	96.261	101.282	99.028	2300
	2400	50.260	112.658	145.197	98.256	106.294	100.908	2400
	2500	50.555	117.699	147.255	100.175	111.335	102.721	2500
	2600	50.853	122.769	149.243	102.024	116.405	104.472	2600
	2700	51.154	127.869	151.168	103.809	121.505	106.166	2700
	2800	51.458	133.000	153.034	105.534	126.636	107.807	2800
	2900	51.763	138.161	154.845	107.203	131.797	109.398	2900
	3000	52.070	143.353	156.605	108.821	136.989	110.942	3000
	3100	52.379	148.575	158.318	110.391	142.211	112.443	3100
	3200	52.689	153.828	159.985	111.914	147.464	113.902	3200
	3300	53.000	159.113	161.611	113.395	152.749	115.323	3300
	3400	53.312	164.428	163.198	114.837	158.064	116.709	3400
	3500	53.625	169.775	164.748	116.241	163.411	118.059	3500
	3600	53.939	175.153	166.263	117.609	168.789	119.377	3600
	3700	54.254	180.563	167.745	118.944	174.199	120.664	3700
	3800	54.569	186.004	169.196	120.248	179.640	121.922	3800
	3900	54.885	191.477	170.618	121.521	185.113	123.153	3900
	4000	55.201	196.981	172.011	122.766	190.617	124.357	4000

TABLE III.48. - SELECTED THERMODYNAMIC FUNCTIONS FOR V(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.640	INFINITE	0
	100	13.119	0.489	7.185	2.295	-4.151	48.695	100
	150	18.838	1.299	13.676	5.016	-3.341	35.949	150
	200	21.876	2.325	19.558	7.933	-2.315	31.133	200
	250	23.703	3.469	24.655	10.779	-1.171	29.339	250
	298.15	24.896	4.640	28.936	13.373	0.000	28.936	298.15
	300	24.928	4.686	29.090	13.470	0.046	28.937	300
	350	25.681	5.952	32.992	15.986	1.312	29.243	350
	400	26.234	7.251	36.459	18.332	2.611	29.931	400
	450	26.610	8.572	39.571	20.522	3.932	30.833	450
	500	26.945	9.911	42.392	22.570	5.271	31.850	500
	550	27.217	11.265	44.973	24.491	6.625	32.928	550
	600	27.489	12.633	47.353	26.298	7.993	34.031	600
	700	28.033	15.408	51.630	29.619	10.768	36.247	700
	800	28.660	18.242	55.413	32.610	13.602	38.410	800
	900	29.372	21.144	58.830	35.337	16.504	40.492	900
	1000	30.083	24.116	61.961	37.845	19.476	42.485	1000
	1100	30.878	27.163	64.864	40.170	22.523	44.389	1100
	1200	31.798	30.296	67.590	42.343	25.656	46.210	1200
	1300	32.740	33.522	70.172	44.386	28.882	47.955	1300
	1400	33.807	36.850	72.638	46.317	32.210	49.631	1400
	1500	34.811	40.280	75.004	48.151	35.640	51.244	1500
	1600	35.857	43.813	77.283	49.900	39.173	52.800	1600
	1700	37.028	47.457	79.492	51.576	42.817	54.306	1700
	1800	38.200	51.217	81.641	53.187	46.577	55.765	1800
	1900	39.539	55.104	83.742	54.740	50.464	57.182	1900
	2000	40.920	59.125	85.805	56.242	54.485	58.562	2000
	2100	42.468	63.292	87.837	57.698	58.652	59.907	2100
cr	2190	44.141	67.187	89.653	58.974	62.547	61.093	2190
ℓ	2190	46.204	90.032	100.085	58.974	85.392	61.093	2190
	2200	46.204	90.494	100.295	59.162	85.854	61.271	2200
	2300	46.204	95.114	102.349	60.995	90.474	63.012	2300
	2400	46.204	99.735	104.315	62.759	95.095	64.693	2400
	2500	46.204	104.355	106.202	64.459	99.715	66.315	2500
	2600	46.204	108.975	108.014	66.100	104.335	67.885	2600
	2700	46.204	113.596	109.757	67.685	108.956	69.403	2700
	2800	46.204	118.216	111.438	69.218	113.576	70.875	2800
	2900	46.204	122.837	113.059	70.702	118.197	72.302	2900
	3000	46.204	127.457	114.626	72.140	122.817	73.686	3000
	3100	46.204	132.077	116.141	73.535	127.437	75.032	3100
	3200	46.204	136.698	117.607	74.889	132.058	76.339	3200
	3300	46.204	141.318	119.029	76.205	136.678	77.612	3300
	3400	46.204	145.939	120.409	77.485	141.299	78.850	3400
	3500	46.204	150.559	121.748	78.731	145.919	80.057	3500
	3600	46.204	155.179	123.049	79.944	150.539	81.233	3600
	3700	46.204	159.800	124.315	81.126	155.160	82.380	3700
	3800	46.204	164.420	125.548	82.279	159.780	83.500	3800
	3900	46.204	169.041	126.748	83.404	164.401	84.594	3900
	4000	46.204	173.661	127.918	84.502	169.021	85.662	4000
	4100	46.204	178.281	129.058	85.575	173.641	86.707	4100
	4200	46.204	182.902	130.172	86.624	178.262	87.729	4200
	4300	46.204	187.522	131.259	87.649	182.882	88.728	4300
	4400	46.204	192.143	132.321	88.652	187.503	89.707	4400
	4500	46.204	196.763	133.360	89.634	192.123	90.666	4500
	4600	46.204	201.383	134.375	90.596	196.743	91.605	4600
	4700	46.204	206.004	135.369	91.538	201.364	92.525	4700
	4800	46.204	210.624	136.342	92.461	205.984	93.428	4800
	4900	46.204	215.245	137.294	93.367	210.605	94.314	4900
	5000	46.204	219.865	138.228	94.255	215.225	95.183	5000
	5100	46.204	224.485	139.143	95.126	219.845	96.036	5100
	5200	46.204	229.106	140.040	95.981	224.466	96.873	5200
	5300	46.204	233.726	140.920	96.821	229.086	97.696	5300
	5400	46.204	238.347	141.784	97.645	233.707	98.505	5400
	5500	46.204	242.967	142.631	98.456	238.327	99.299	5500
	5600	46.204	247.587	143.464	99.252	242.947	100.080	5600
	5700	46.204	252.208	144.282	100.035	247.568	100.849	5700
	5800	46.204	256.828	145.085	100.805	252.188	101.605	5800
	5900	46.204	261.449	145.875	101.562	256.809	102.348	5900
	6000	46.204	266.069	146.652	102.307	261.429	103.080	6000

TABLE III.49. - SELECTED THERMODYNAMIC FUNCTIONS FOR W(cr,ℓ)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-4.973	INFINITE	0
100	16.033	0.652	9.612	3.092	-4.321	52.822	100
150	20.531	1.580	17.072	6.539	-3.393	39.692	150
200	22.489	2.660	23.273	9.973	-2.313	34.838	200
250	23.686	3.817	28.431	13.163	-1.156	33.055	250
298.15	24.295	4.973	32.660	15.980	0.000	32.660	298.15
300	24.313	5.018	32.810	16.083	0.045	32.660	300
350	24.644	6.242	36.583	18.749	1.269	32.957	350
400	24.928	7.482	39.893	21.188	2.509	33.620	400
450	25.144	8.733	42.842	23.435	3.760	34.486	450
500	25.359	9.996	45.502	25.510	5.023	35.456	500
550	25.574	11.269	47.929	27.440	6.296	36.482	550
600	25.790	12.553	50.163	29.241	7.580	37.530	600
700	26.229	15.154	54.172	32.523	10.181	39.628	700
800	26.669	17.799	57.703	35.454	12.826	41.670	800
900	27.112	20.488	60.870	38.106	15.515	43.631	900
1000	27.564	23.222	63.750	40.528	18.249	45.501	1000
1100	28.017	26.001	66.398	42.761	21.028	47.282	1100
1200	28.472	28.825	68.855	44.834	23.852	48.978	1200
1300	28.930	31.695	71.152	46.771	26.722	50.597	1300
1400	29.393	34.612	73.313	48.590	29.639	52.142	1400
1500	29.862	37.574	75.357	50.308	32.601	53.623	1500
1600	30.334	40.584	77.299	51.934	35.611	55.042	1600
1700	30.807	43.641	79.152	53.481	38.668	56.406	1700
1800	31.284	46.746	80.927	54.957	41.773	57.720	1800
1900	31.765	49.898	82.631	56.369	44.925	58.986	1900
2000	32.254	53.099	84.273	57.723	48.126	60.210	2000
2100	32.744	56.349	85.858	59.025	51.376	61.393	2100
2200	33.238	59.648	87.393	60.280	54.675	62.541	2200
2300	33.736	62.997	88.881	61.491	58.024	63.653	2300
2400	34.233	66.395	90.328	62.663	61.422	64.735	2400
2500	34.736	69.843	91.735	63.798	64.870	65.787	2500
2600	35.246	73.339	93.106	64.899	68.366	66.811	2600
2700	36.192	76.908	94.453	65.969	71.935	67.810	2700
2800	37.447	80.586	95.791	67.010	75.613	68.786	2800
2900	39.120	84.413	97.133	68.025	79.440	69.740	2900
3000	41.003	88.415	98.490	69.018	83.442	70.676	3000
3100	43.430	92.635	99.873	69.991	87.662	71.595	3100
3200	46.024	97.105	101.292	70.947	92.132	72.501	3200
3300	48.953	101.850	102.752	71.888	96.877	73.395	3300
3400	52.300	106.906	104.261	72.818	101.933	74.281	3400
3500	56.484	112.336	105.835	73.739	107.363	75.160	3500
3600	61.714	118.243	107.499	74.654	113.270	76.035	3600
cr 3680	66.149	123.356	108.903	75.383	118.383	76.734	3680
ℓ 3680	35.564	158.753	118.522	75.383	153.780	76.734	3680
3700	35.564	159.464	118.715	75.617	154.491	76.961	3700
3800	35.564	163.021	119.663	76.763	158.048	78.072	3800
3900	35.564	166.577	120.587	77.875	161.604	79.150	3900
4000	35.564	170.133	121.488	78.954	165.160	80.197	4000
4100	35.564	173.690	122.366	80.002	168.717	81.215	4100
4200	35.564	177.246	123.223	81.021	172.273	82.205	4200
4300	35.564	180.803	124.060	82.012	175.830	83.169	4300
4400	35.564	184.359	124.877	82.977	179.386	84.108	4400
4500	35.564	187.915	125.676	83.917	182.942	85.023	4500
4600	35.564	191.472	126.458	84.834	186.499	85.915	4600
4700	35.564	195.028	127.223	85.728	190.055	86.786	4700
4800	35.564	198.585	127.972	86.600	193.612	87.636	4800
4900	35.564	202.141	128.705	87.452	197.168	88.467	4900
5000	35.564	205.697	129.423	88.284	200.724	89.279	5000
5100	35.564	209.254	130.128	89.098	204.281	90.073	5100
5200	35.564	212.810	130.818	89.893	207.837	90.850	5200
5300	35.564	216.367	131.496	90.672	211.394	91.610	5300
5400	35.564	219.923	132.161	91.434	214.950	92.355	5400
5500	35.564	223.479	132.813	92.180	218.506	93.085	5500
5600	35.564	227.036	133.454	92.912	222.063	93.800	5600
5700	35.564	230.592	134.083	93.629	225.619	94.501	5700
5800	35.564	234.149	134.702	94.331	229.176	95.189	5800
5900	35.564	237.705	135.310	95.021	232.732	95.864	5900
6000	35.564	241.261	135.908	95.697	236.288	96.526	6000

TABLE III.50. - SELECTED THERMODYNAMIC FUNCTIONS FOR Xe

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
100	20.786	2.079	146.978	126.192	-4.119	188.166	100
200	20.786	4.157	161.386	140.600	-2.040	171.587	200
298.15	20.786	6.197	169.686	148.900	0.000	169.686	298.15
300	20.786	6.236	169.815	149.028	0.038	169.686	300
400	20.786	8.315	175.794	155.008	2.117	170.502	400
500	20.786	10.393	180.433	159.646	4.196	172.041	500
600	20.786	12.472	184.222	163.436	6.274	173.765	600
700	20.786	14.550	187.427	166.640	8.353	175.494	700
800	20.786	16.629	190.202	169.416	10.432	177.163	800
900	20.786	18.708	192.651	171.864	12.510	178.750	900
1000	20.786	20.786	194.841	174.054	14.589	180.252	1000
1100	20.786	22.865	196.822	176.036	16.667	181.670	1100
1200	20.786	24.944	198.630	177.844	18.746	183.009	1200
1300	20.786	27.022	200.294	179.508	20.825	184.275	1300
1400	20.786	29.101	201.835	181.048	22.903	185.475	1400
1500	20.786	31.179	203.269	182.482	24.982	186.614	1500
1600	20.786	33.258	204.610	183.824	27.061	187.697	1600
1700	20.786	35.337	205.870	185.084	29.139	188.730	1700
1800	20.786	37.415	207.059	186.272	31.218	189.715	1800
1900	20.786	39.494	208.182	187.396	33.296	190.658	1900
2000	20.786	41.573	209.249	188.462	35.375	191.561	2000
2100	20.786	43.651	210.263	189.476	37.454	192.428	2100
2200	20.786	45.730	211.230	190.443	39.532	193.260	2200
2300	20.786	47.808	212.154	191.367	41.611	194.062	2300
2400	20.786	49.887	213.038	192.252	43.690	194.834	2400
2500	20.786	51.966	213.887	193.101	45.768	195.580	2500
2600	20.786	54.044	214.702	193.916	47.847	196.300	2600
2700	20.786	56.123	215.487	194.700	49.926	196.996	2700
2800	20.786	58.202	216.243	195.456	52.004	197.670	2800
2900	20.786	60.280	216.972	196.186	54.083	198.323	2900
3000	20.786	62.359	217.677	196.890	56.161	198.956	3000
3100	20.786	64.437	218.358	197.572	58.240	199.571	3100
3200	20.786	66.516	219.018	198.232	60.319	200.169	3200
3300	20.786	68.595	219.658	198.872	62.397	200.750	3300
3400	20.786	70.673	220.278	199.492	64.476	201.315	3400
3500	20.786	72.752	220.881	200.095	66.555	201.865	3500
3600	20.786	74.831	221.466	200.680	68.633	202.402	3600
3700	20.786	76.909	222.036	201.250	70.712	202.925	3700
3800	20.786	78.988	222.590	201.804	72.790	203.435	3800
3900	20.786	81.066	223.130	202.344	74.869	203.933	3900
4000	20.786	83.145	223.657	202.870	76.948	204.420	4000
4100	20.786	85.224	224.170	203.384	79.026	204.895	4100
4200	20.786	87.302	224.671	203.884	81.105	205.360	4200
4300	20.786	89.381	225.160	204.374	83.184	205.815	4300
4400	20.786	91.460	225.638	204.851	85.262	206.260	4400
4500	20.786	93.538	226.105	205.319	87.341	206.696	4500
4600	20.786	95.617	226.562	205.775	89.419	207.123	4600
4700	20.786	97.695	227.009	206.222	91.498	207.541	4700
4800	20.786	99.774	227.446	206.660	93.577	207.951	4800
4900	20.786	101.853	227.875	207.089	95.655	208.353	4900
5000	20.786	103.931	228.295	207.509	97.734	208.748	5000
5100	20.786	106.010	228.706	207.920	99.813	209.135	5100
5200	20.786	108.089	229.110	208.324	101.891	209.516	5200
5300	20.786	110.167	229.506	208.720	103.970	209.889	5300
5400	20.786	112.246	229.895	209.108	106.048	210.256	5400
5500	20.786	114.325	230.276	209.490	108.127	210.617	5500
5600	20.786	116.403	230.651	209.864	110.206	210.971	5600
5700	20.787	118.482	231.018	210.232	112.284	211.319	5700
5800	20.787	120.561	231.380	210.594	114.363	211.662	5800
5900	20.787	122.639	231.735	210.949	116.442	211.999	5900
6000	20.787	124.718	232.085	211.298	118.520	212.331	6000
6200	20.788	128.875	232.766	211.980	122.678	212.980	6200
6400	20.789	133.033	233.426	212.640	126.836	213.608	6400
6600	20.790	137.191	234.066	213.280	130.993	214.219	6600
6800	20.793	141.349	234.687	213.900	135.152	214.811	6800
7000	20.797	145.508	235.289	214.503	139.311	215.388	7000
7200	20.803	149.668	235.875	215.088	143.471	215.949	7200
7400	20.812	153.830	236.446	215.658	147.632	216.495	7400
7600	20.824	157.993	237.001	216.212	151.796	217.028	7600
7800	20.841	162.159	237.542	216.752	155.962	217.547	7800
8000	20.864	166.330	238.070	217.279	160.132	218.053	8000

TABLE III.50. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.895	170.505	238.585	217.792	164.308	218.548	8200
8400	20.936	174.688	239.089	218.293	168.491	219.031	8400
8600	20.989	178.881	239.582	218.782	172.683	219.503	8600
8800	21.057	183.085	240.066	219.261	176.888	219.965	8800
9000	21.144	187.305	240.540	219.728	181.107	220.417	9000
9200	21.252	191.544	241.006	220.186	185.346	220.859	9200
9400	21.385	195.807	241.464	220.634	189.610	221.293	9400
9600	21.548	200.100	241.916	221.072	193.902	221.718	9600
9800	21.745	204.429	242.362	221.502	198.231	222.135	9800
10000	21.982	208.801	242.804	221.924	202.603	222.544	10000
10500	22.782	219.978	243.895	222.944	213.781	223.534	10500
11000	23.952	231.644	244.980	223.921	225.447	224.485	11000
11500	25.588	244.008	246.079	224.861	237.810	225.399	11500
12000	27.788	257.327	247.212	225.768	251.129	226.285	12000
12500	30.639	271.905	248.402	226.649	265.707	227.145	12500
13000	34.207	288.085	249.671	227.510	281.888	227.987	13000
13500	38.530	306.238	251.040	228.356	300.040	228.815	13500
14000	43.600	326.740	252.531	229.192	320.542	229.635	14000
14500	49.361	349.953	254.159	230.025	343.756	230.452	14500
15000	55.695	376.197	255.938	230.858	369.999	231.272	15000
15500	62.430	405.716	257.873	231.698	399.518	232.098	15500
16000	69.338	438.656	259.965	232.549	432.458	232.936	16000
16500	76.158	475.039	262.203	233.413	468.841	233.788	16500
17000	82.611	514.752	264.574	234.294	508.555	234.659	17000
17500	88.430	557.544	267.054	235.195	551.347	235.549	17500
18000	93.379	603.036	269.617	236.115	596.839	236.459	18000
18500	97.279	650.747	272.231	237.056	644.550	237.391	18500
19000	100.020	700.122	274.865	238.016	693.924	238.342	19000
19500	101.567	750.568	277.485	238.994	744.371	239.312	19500
20000	101.951	801.494	280.064	239.989	795.297	240.299	20000

TABLE III.51. - SELECTED THERMODYNAMIC FUNCTIONS FOR Zn(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.657	INFINITE	0
	100	19.460	0.996	16.520	6.560	-4.661	63.130	100
	200	24.050	3.230	31.810	15.660	-2.427	43.945	200
	298.15	25.390	5.657	41.630	22.656	0.000	41.630	298.15
	300	25.410	5.704	41.787	22.774	0.047	41.630	300
	400	26.226	8.288	49.215	28.495	2.631	42.637	400
	500	27.220	10.956	55.165	33.253	5.299	44.567	500
	600	28.820	13.752	60.258	37.338	8.095	46.766	600
cr	692.73	30.975	16.519	64.543	40.696	10.862	48.863	692.73
ℓ	692.73	31.400	23.819	75.081	40.696	18.162	48.863	692.73
	700	31.400	24.048	75.409	41.055	18.391	49.137	700
	800	31.400	27.188	79.602	45.617	21.531	52.689	800
	900	31.400	30.328	83.300	49.603	24.671	55.888	900
	1000	31.400	33.468	86.608	53.141	27.811	58.798	1000
	1100	31.400	36.608	89.601	56.322	30.951	61.464	1100
	1200	31.400	39.748	92.333	59.210	34.091	63.925	1200
	1300	31.400	42.888	94.847	61.856	37.231	66.208	1300
	1400	31.400	46.028	97.174	64.297	40.371	68.338	1400
	1500	31.400	49.168	99.340	66.562	43.511	70.333	1500
	1600	31.400	52.308	101.366	68.674	46.651	72.210	1600
	1700	31.400	55.448	103.270	70.654	49.791	73.982	1700
	1800	31.400	58.588	105.065	72.516	52.931	75.659	1800
	1900	31.400	61.728	106.763	74.274	56.071	77.252	1900
	2000	31.400	64.868	108.373	75.939	59.211	78.768	2000
	2100	31.400	68.008	109.905	77.521	62.351	80.214	2100
	2200	31.400	71.148	111.366	79.026	65.491	81.598	2200
	2300	31.400	74.288	112.762	80.463	68.631	82.922	2300
	2400	31.400	77.428	114.098	81.837	71.771	84.194	2400
	2500	31.400	80.568	115.380	83.153	74.911	85.416	2500
	2600	31.400	83.708	116.611	84.416	78.051	86.592	2600
	2700	31.400	86.848	117.796	85.631	81.191	87.726	2700
	2800	31.400	89.988	118.938	86.800	84.331	88.820	2800
	2900	31.400	93.128	120.040	87.927	87.471	89.878	2900
	3000	31.400	96.268	121.105	89.016	90.611	90.901	3000
	3100	31.400	99.408	122.134	90.067	93.751	91.892	3100
	3200	31.400	102.548	123.131	91.085	96.891	92.853	3200
	3300	31.400	105.688	124.098	92.071	100.031	93.785	3300
	3400	31.400	108.828	125.035	93.027	103.171	94.691	3400
	3500	31.400	111.968	125.945	93.954	106.311	95.571	3500
	3600	31.400	115.108	126.830	94.855	109.451	96.427	3600
	3700	31.400	118.248	127.690	95.731	112.591	97.260	3700
	3800	31.400	121.388	128.527	96.583	115.731	98.072	3800
	3900	31.400	124.528	129.343	97.413	118.871	98.863	3900
	4000	31.400	127.668	130.138	98.221	122.011	99.635	4000
	4100	31.400	130.808	130.913	99.009	125.151	100.389	4100
	4200	31.400	133.948	131.670	99.778	128.291	101.125	4200
	4300	31.400	137.088	132.409	100.528	131.431	101.844	4300
	4400	31.400	140.228	133.131	101.261	134.571	102.547	4400
	4500	31.400	143.368	133.836	101.977	137.711	103.234	4500
	4600	31.400	146.508	134.527	102.677	140.851	103.907	4600
	4700	31.400	149.648	135.202	103.362	143.991	104.566	4700
	4800	31.400	152.788	135.863	104.032	147.131	105.211	4800
	4900	31.400	155.928	136.510	104.688	150.271	105.843	4900
	5000	31.400	159.068	137.145	105.331	153.411	106.463	5000
	5100	31.400	162.208	137.767	105.961	156.551	107.070	5100
	5200	31.400	165.348	138.376	106.579	159.691	107.667	5200
	5300	31.400	168.488	138.974	107.184	162.831	108.252	5300
	5400	31.400	171.628	139.561	107.778	165.971	108.826	5400
	5500	31.400	174.768	140.137	108.362	169.111	109.390	5500
	5600	31.400	177.908	140.703	108.934	172.251	109.944	5600
	5700	31.400	181.048	141.259	109.496	175.391	110.489	5700
	5800	31.400	184.188	141.805	110.049	178.531	111.024	5800
	5900	31.400	187.328	142.342	110.591	181.671	111.550	5900
	6000	31.400	190.468	142.870	111.125	184.811	112.068	6000

TABLE III.52. - SELECTED THERMODYNAMIC FUNCTIONS FOR Zr(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.497	INFINITE	0
	100	18.617	0.886	14.055	5.195	-4.611	60.165	100
	150	22.260	1.921	22.396	9.589	-3.576	46.236	150
	200	23.873	3.079	29.050	13.655	-2.418	41.140	200
	250	24.693	4.295	34.474	17.294	-1.202	39.282	250
	298.15	25.202	5.497	38.869	20.432	0.000	38.869	298.15
	300	25.218	5.544	39.025	20.545	0.047	38.868	300
	350	25.606	6.815	42.943	23.472	1.318	39.177	350
	400	25.935	8.103	46.384	26.127	2.606	39.869	400
	450	26.246	9.408	49.457	28.550	3.911	40.766	450
	500	26.564	10.728	52.238	30.782	5.231	41.776	500
	550	26.906	12.065	54.786	32.850	6.568	42.844	550
	600	27.281	13.419	57.143	34.778	7.922	43.940	600
	700	28.053	16.186	61.406	38.283	10.689	46.136	700
	800	28.966	19.035	65.210	41.416	13.538	48.287	800
	900	30.003	21.983	68.680	44.254	16.486	50.362	900
	1000	31.128	25.039	71.899	46.860	19.542	52.357	1000
	1100	32.306	28.210	74.921	49.276	22.713	54.273	1100
α	1135	32.724	29.348	75.939	50.082	23.851	54.925	1135
β	1135	28.329	33.365	79.478	50.082	27.868	54.925	1135
	1200	28.511	35.212	81.060	51.717	29.715	56.297	1200
	1300	28.879	38.081	83.356	54.063	32.584	58.291	1300
	1400	29.353	40.991	85.513	56.234	35.494	60.160	1400
	1500	29.934	43.955	87.558	58.255	38.458	61.919	1500
	1600	30.621	46.982	89.511	60.147	41.485	63.583	1600
	1700	31.414	50.083	91.390	61.929	44.586	65.163	1700
	1800	32.314	53.268	93.211	63.618	47.771	66.672	1800
	1900	33.320	56.549	94.985	65.222	51.052	68.116	1900
	2000	34.433	59.936	96.722	66.754	54.439	69.502	2000
	2100	35.652	63.439	98.431	68.222	57.942	70.840	2100
β	2125	35.973	64.334	98.854	68.580	58.837	71.166	2125
ℓ	2125	41.840	85.254	108.699	68.580	79.757	71.166	2125
	2200	41.840	88.392	110.150	69.972	82.895	72.471	2200
	2300	41.840	92.576	112.010	71.760	87.079	74.150	2300
	2400	41.840	96.760	113.791	73.474	91.263	75.765	2400
	2500	41.840	100.944	115.499	75.121	95.447	77.320	2500
	2600	41.840	105.128	117.140	76.706	99.631	78.820	2600
	2700	41.840	109.312	118.719	78.233	103.815	80.269	2700
	2800	41.840	113.496	120.241	79.706	107.999	81.669	2800
	2900	41.840	117.680	121.709	81.129	112.183	83.025	2900
	3000	41.840	121.864	123.127	82.506	116.367	84.338	3000
	3100	41.840	126.048	124.499	83.838	120.551	85.612	3100
	3200	41.840	130.232	125.827	85.130	124.735	86.848	3200
	3300	41.840	134.416	127.115	86.383	128.919	88.049	3300
	3400	41.840	138.600	128.364	87.599	133.103	89.216	3400
	3500	41.840	142.784	129.577	88.781	137.287	90.352	3500
	3600	41.840	146.968	130.756	89.931	141.471	91.458	3600
	3700	41.840	151.152	131.902	91.050	145.655	92.536	3700
	3800	41.840	155.336	133.018	92.140	149.839	93.586	3800
	3900	41.840	159.520	134.104	93.202	154.023	94.611	3900
	4000	41.840	163.704	135.164	94.238	158.207	95.612	4000
	4100	41.840	167.888	136.197	95.249	162.391	96.589	4100
	4200	41.840	172.072	137.205	96.236	166.575	97.544	4200
	4300	41.840	176.256	138.190	97.200	170.759	98.478	4300
	4400	41.840	180.440	139.152	98.142	174.943	99.392	4400
	4500	41.840	184.624	140.092	99.064	179.127	100.286	4500
	4600	41.840	188.808	141.011	99.966	183.311	101.161	4600
	4700	41.840	192.992	141.911	100.849	187.495	102.019	4700
	4800	41.840	197.176	142.792	101.714	191.679	102.859	4800
	4900	41.840	201.360	143.655	102.561	195.863	103.683	4900
	5000	41.840	205.544	144.500	103.391	200.047	104.491	5000
	5100	41.840	209.728	145.329	104.206	204.231	105.283	5100
	5200	41.840	213.912	146.141	105.004	208.415	106.061	5200
	5300	41.840	218.096	146.938	105.788	212.599	106.825	5300
	5400	41.840	222.280	147.720	106.557	216.783	107.575	5400
	5500	41.840	226.464	148.488	107.313	220.967	108.312	5500
	5600	41.840	230.648	149.242	108.055	225.151	109.036	5600
	5700	41.840	234.832	149.982	108.784	229.335	109.748	5700
	5800	41.840	239.016	150.710	109.500	233.519	110.448	5800
	5900	41.840	243.200	151.425	110.205	237.703	111.137	5900
	6000	41.840	247.384	152.128	110.898	241.887	111.814	6000

TABLE IV. - ENTHALPY AND GIBBS ENERGY INPUT FOR PAC91 (EFdata)

```
EFDA  AG1S   CODA89     H0/R      -690.9607MP        1235.0800NT          63.0000
      100.00       1.253231     0.805820      200.00       1.989293      1.938779
      298.15       2.317494     2.800066      300.00       2.322045      2.814397
      400.00       2.509769     3.510550      500.00       2.635152      4.084546
      600.00       2.730568     4.573892      700.00       2.809890      5.000793
      800.00       2.879304     5.380594      900.00       2.942246      5.723448
     1000.00       3.000658     6.036555     1100.00       3.055994      6.325196
     1200.00       3.108922     6.593393     1235.08       3.127095      6.683176
     1235.08       4.198271     6.683176     1300.00       4.189222      6.898013
     1400.00       4.176926     7.208007     1500.00       4.166269      7.495813
     1600.00       4.156944     7.764394     1700.00       4.148717      8.016155
     1800.00       4.141403     8.253078     1900.00       4.134859      8.476814
     2000.00       4.128970     8.688752     2100.00       4.123642      8.890074
     2200.00       4.118798     9.081792     2300.00       4.114375      9.264781
     2400.00       4.110321     9.439800     2500.00       4.106591      9.607515
     2600.00       4.103148     9.768511     2700.00       4.099960      9.923304
     2800.00       4.097000    10.072356     2900.00       4.094244     10.216076
     3000.00       4.091671    10.354834     3100.00       4.089265     10.488959
     3200.00       4.087009    10.618752     3300.00       4.084890     10.744483
     3400.00       4.082895    10.866400     3500.00       4.081015     10.984725
     3600.00       4.079238    11.099666     3700.00       4.077558     11.211410
     3800.00       4.075967    11.320130     3900.00       4.074457     11.425985
     4000.00       4.073022    11.529123     4100.00       4.071657     11.629680
     4200.00       4.070358    11.727781     4300.00       4.069119     11.823544
     4400.00       4.067936    11.917078     4500.00       4.066806     12.008483
     4600.00       4.065724    12.097855     4700.00       4.064689     12.185282
     4800.00       4.063697    12.270847     4900.00       4.062746     12.354628
     5000.00       4.061832    12.436697     5100.00       4.060955     12.517123
     5200.00       4.060111    12.595971     5300.00       4.059299     12.673301
     5400.00       4.058517    12.749171     5500.00       4.057763     12.823634
     5600.00       4.057037    12.896742     5700.00       4.056336     12.968544
     5800.00       4.055659    13.039085     5900.00       4.055005     13.108408
     6000.00       4.054373    13.176556
EFDA  AL1S   CODA89     H0/R      -546.0334MP         933.6100NT          63.0000
      100.00       0.583318     0.256539      200.00       1.373502      0.928497
      298.15       1.831405     1.572283      300.00       1.838152      1.583577
      400.00       2.131214     2.155148      500.00       2.338322      2.654275
      600.00       2.499245     3.095432      700.00       2.634980      3.490937
      800.00       2.758581     3.851069      900.00       2.880506      4.182928
      933.61       2.922508     4.289342      933.61       4.300929      4.289342
     1000.00       4.268909     4.583688     1100.00       4.227974      4.988577
     1200.00       4.193861     5.354953     1300.00       4.164997      5.689470
     1400.00       4.140256     5.997202     1500.00       4.118814      6.282102
     1600.00       4.100052     6.547312     1700.00       4.083498      6.795369
     1800.00       4.068783     7.028351     1900.00       4.055617      7.247980
     2000.00       4.043767     7.455699     2100.00       4.033046      7.652731
     2200.00       4.023300     7.840120     2300.00       4.014401      8.018764
     2400.00       4.006243     8.189440     2500.00       3.998739      8.352829
     2600.00       3.991811     8.509526     2700.00       3.985397      8.660056
     2800.00       3.979441     8.804887     2900.00       3.973896      8.944433
     3000.00       3.968720     9.079066     3100.00       3.963878      9.209119
     3200.00       3.959339     9.334895     3300.00       3.955075      9.456664
     3400.00       3.951062     9.574675     3500.00       3.947278      9.689151
     3600.00       3.943704     9.800299     3700.00       3.940324      9.908306
     3800.00       3.937121    10.013345     3900.00       3.934083     10.115574
     4000.00       3.931196    10.215139     4100.00       3.928451     10.312177
     4200.00       3.925836    10.406811     4300.00       3.923342     10.499159
     4400.00       3.920963    10.589327     4500.00       3.918688     10.677416
     4600.00       3.916513    10.763521     4700.00       3.914430     10.847728
     4800.00       3.912434    10.930119     4900.00       3.910520     11.010771
     5000.00       3.908682    11.089755     5100.00       3.906916     11.167140
     5200.00       3.905218    11.242988     5300.00       3.903585     11.317360
     5400.00       3.902011    11.390311     5500.00       3.900495     11.461896
     5600.00       3.899033    11.532164     5700.00       3.897623     11.601162
     5800.00       3.896261    11.668937     5900.00       3.894945     11.735530
     6000.00       3.893673    11.800982
```

TABLE IV. - Continued.

EFDA	AR1G	L 6/88	H0/R	-745.3750MP		0.0000NT	101.0000
	100.00	2.500000	13.392600	200.00	2.500000	15.125468	
	298.15	2.500000	16.123667	300.00	2.500000	16.139131	
	400.00	2.500000	16.858336	500.00	2.500000	17.416195	
	600.00	2.500000	17.871999	700.00	2.500000	18.257376	
	800.00	2.500000	18.591204	900.00	2.500000	18.885662	
	1000.00	2.500000	19.149063	1100.00	2.500000	19.387339	
	1200.00	2.500000	19.604867	1300.00	2.500000	19.804974	
	1400.00	2.500000	19.990244	1500.00	2.500000	20.162726	
	1600.00	2.500000	20.324072	1700.00	2.500000	20.475634	
	1800.00	2.500000	20.618530	1900.00	2.500000	20.753698	
	2000.00	2.500000	20.881931	2100.00	2.500000	21.003906	
	2200.00	2.500000	21.120207	2300.00	2.500000	21.231336	
	2400.00	2.500000	21.337735	2500.00	2.500000	21.439790	
	2600.00	2.500000	21.537842	2700.00	2.500000	21.632193	
	2800.00	2.500000	21.723112	2900.00	2.500000	21.810840	
	3000.00	2.500000	21.895594	3100.00	2.500000	21.977568	
	3200.00	2.500000	22.056940	3300.00	2.500000	22.133869	
	3400.00	2.500000	22.208502	3500.00	2.500000	22.280971	
	3600.00	2.500000	22.351398	3700.00	2.500000	22.419895	
	3800.00	2.500000	22.486566	3900.00	2.500000	22.551504	
	4000.00	2.500000	22.614799	4100.00	2.500000	22.676531	
	4200.00	2.500000	22.736774	4300.00	2.500000	22.795601	
	4400.00	2.500000	22.853074	4500.00	2.500000	22.909257	
	4600.00	2.500000	22.964204	4700.00	2.500000	23.017969	
	4800.00	2.500000	23.070603	4900.00	2.500000	23.122151	
	5000.00	2.500000	23.172658	5100.00	2.500000	23.222164	
	5200.00	2.500000	23.270710	5300.00	2.500000	23.318330	
	5400.00	2.500000	23.365060	5500.00	2.500000	23.410933	
	5600.00	2.500000	23.455980	5700.00	2.500000	23.500229	
	5800.00	2.500000	23.543708	5900.00	2.500000	23.586444	
	6000.00	2.500000	23.628462	6200.00	2.500000	23.710436	
	6400.00	2.500000	23.789808	6600.00	2.500000	23.866737	
	6800.00	2.500001	23.941370	7000.00	2.500001	24.013839	
	7200.00	2.500003	24.084266	7400.00	2.500004	24.152763	
	7600.00	2.500007	24.219434	7800.00	2.500011	24.284373	
	8000.00	2.500017	24.347668	8200.00	2.500026	24.409400	
	8400.00	2.500038	24.469645	8600.00	2.500055	24.528472	
	8800.00	2.500080	24.585947	9000.00	2.500113	24.642131	
	9200.00	2.500158	24.697082	9400.00	2.500216	24.750851	
	9600.00	2.500294	24.803490	9800.00	2.500396	24.855045	
	10000.00	2.500498	24.905560	10500.00	2.500962	25.027569	
	11000.00	2.501721	25.143928	11500.00	2.502924	25.255156	
	12000.00	2.504698	25.361708	12500.00	2.507255	25.463992	
	13000.00	2.511003	25.562393	13500.00	2.516279	25.657253	
	14000.00	2.523342	25.748881	14500.00	2.531887	25.837513	
	15000.00	2.541827	25.923377	15500.00	2.555305	26.006886	
	16000.00	2.572537	26.088276	16500.00	2.593485	26.167748	
	17000.00	2.616912	26.245363	17500.00	2.643872	26.321398	
	18000.00	2.660719	26.394505	18500.00	2.695113	26.467864	
	19000.00	2.729779	26.539732	19500.00	2.754765	26.608987	
	20000.00	2.777339	26.676535				

TABLE IV. - Continued.

EFDA	B 1S	J6/83	H0/R	-146.0098MP	2350.0000NT	94.0000
	100.00	0.028865	0.008178	110.00	0.040455	0.010781
	130.00	0.067537	0.020021	150.00	0.101830	0.032513
	160.00	0.121775	0.039630	180.00	0.165708	0.056554
	200.00	0.214685	0.076252	210.00	0.240543	0.087197
	230.00	0.294404	0.111392	250.00	0.350231	0.138433
	260.00	0.378856	0.152625	290.00	0.465742	0.198880
	298.15	0.489719	0.211946	300.00	0.495118	0.214966
	310.00	0.524152	0.231876	330.00	0.582406	0.266351
	350.00	0.639845	0.302363	400.00	0.781164	0.396776
	450.00	0.915401	0.496829	500.00	1.041312	0.599675
	550.00	1.157669	0.704497	600.00	1.264857	0.809950
	650.00	1.363511	0.915156	700.00	1.454428	1.019560
	750.00	1.538194	1.122816	800.00	1.615850	1.224606
	850.00	1.687765	1.324679	900.00	1.754496	1.423201
	950.00	1.816862	1.519715	1000.00	1.875276	1.614286
	1050.00	1.929959	1.707176	1100.00	1.981421	1.798116
	1150.00	2.029872	1.887376	1200.00	2.075689	1.974700
	1250.00	2.119187	2.060374	1300.00	2.160449	2.144314
	1350.00	2.199724	2.226514	1400.00	2.237225	2.307240
	1450.00	2.272969	2.386356	1500.00	2.307292	2.464006
	1550.00	2.340176	2.540207	1600.00	2.371757	2.615067
	1700.00	2.431539	2.760589	1750.00	2.459796	2.831556
	1800.00	2.487151	2.901140	1850.00	2.513613	2.969693
	1900.00	2.539315	3.037081	1950.00	2.564192	3.103370
	2000.00	2.588367	3.168557	2050.00	2.611890	3.232832
	2100.00	2.634809	3.296028	2150.00	2.657109	3.358279
	2200.00	2.678887	3.419608	2250.00	2.700126	3.480034
	2300.00	2.720911	3.539590	2350.00	2.741170	3.598349
	2350.00	5.310787	3.598349	2400.00	5.279701	3.709831
	2500.00	5.221258	3.924158	2600.00	5.167310	4.127875
	2700.00	5.117359	4.321942	2800.00	5.070976	4.507200
	2900.00	5.027791	4.684385	3000.00	4.987486	4.854148
	3100.00	4.949781	5.017065	3200.00	4.914432	5.173650
	3300.00	4.881226	5.324362	3400.00	4.849973	5.469612
	3500.00	4.820506	5.609771	3600.00	4.792676	5.745176
	3700.00	4.766350	5.876128	3800.00	4.741410	6.002904
	3900.00	4.717749	6.125756	4000.00	4.695271	6.244913
	4100.00	4.673889	6.360586	4200.00	4.653526	6.472969
	4300.00	4.634109	6.582240	4400.00	4.615576	6.688562
	4500.00	4.597866	6.792087	4600.00	4.580926	6.892956
	4700.00	4.564707	6.991300	4800.00	4.549163	7.087238
	4900.00	4.534254	7.180884	5000.00	4.519942	7.272344
	5100.00	4.506190	7.361714	5200.00	4.492968	7.449086
	5300.00	4.480245	7.534548	5400.00	4.467992	7.618178
	5500.00	4.456186	7.700053	5600.00	4.444801	7.780244
	5700.00	4.433815	7.858818	5800.00	4.423208	7.935837
	5900.00	4.412961	8.011362	6000.00	4.403056	8.085447

TABLE IV. - Continued.

EFDA	BA1S	SRD 92	H0/R	-830.7154MP	1000.0000NT	80.0000
	20.00	0.352480	0.136931	30.00	0.732361	0.352590
	40.00	1.056892	0.609328	50.00	1.317702	0.874281
	60.00	1.525311	1.133597	70.00	1.691292	1.381651
	80.00	1.826668	1.616629	90.00	1.940138	1.838528
	100.00	2.035957	2.048037	120.00	2.189448	2.433460
	140.00	2.307844	2.780217	160.00	2.402851	3.094803
	180.00	2.481562	3.382497	200.00	2.548536	3.647509
	220.00	2.606863	3.893205	240.00	2.658730	4.122296
	260.00	2.705750	4.336992	280.00	2.749155	4.539118
	298.15	2.786233	4.712946	300.00	2.789912	4.730192
	350.00	2.882144	5.167349	400.00	2.964053	5.557645
	450.00	3.039079	5.911147	500.00	3.109288	6.235015
	600.00	3.240071	6.813626	700.00	3.362594	7.322368
	800.00	3.479955	7.779087	900.00	3.593876	8.195572
	1000.00	3.705387	8.580013	1000.00	4.649520	8.580013
	1100.00	4.664188	9.023870	1200.00	4.676411	9.430247
	1300.00	4.686754	9.804979	1400.00	4.695619	10.152637
	1500.00	4.703302	10.476870	1600.00	4.710025	10.780633
	1700.00	4.715957	11.066358	1800.00	4.721230	11.336067
	1900.00	4.725947	11.591460	2000.00	4.730193	11.833979
	2100.00	4.734035	12.064860	2200.00	4.737527	12.285169
	2300.00	4.740716	12.495832	2400.00	4.743639	12.697658
	2500.00	4.746328	12.891358	2600.00	4.748810	13.077561
	2700.00	4.751109	13.256827	2800.00	4.753243	13.429652
	2900.00	4.755230	13.596485	3000.00	4.757084	13.757726
	3100.00	4.758819	13.913739	3200.00	4.760446	14.064851
	3300.00	4.761974	14.211362	3400.00	4.763412	14.353542
	3500.00	4.764768	14.491641	3600.00	4.766048	14.625887
	3700.00	4.767260	14.756489	3800.00	4.768407	14.883639
	3900.00	4.769496	15.007514	4000.00	4.770530	15.128281
	4100.00	4.771514	15.246090	4200.00	4.772451	15.361083
	4300.00	4.773344	15.473392	4400.00	4.774197	15.583138
	4500.00	4.775012	15.690437	4600.00	4.775791	15.795396
	4700.00	4.776538	15.898113	4800.00	4.777253	15.998683
	4900.00	4.777939	16.097193	5000.00	4.778597	16.193727
	5100.00	4.779230	16.288362	5200.00	4.779839	16.381172
	5300.00	4.780424	16.472225	5400.00	4.780988	16.561586
	5500.00	4.781531	16.649318	5600.00	4.782055	16.735479
	5700.00	4.782560	16.820124	5800.00	4.783048	16.903305
	5900.00	4.783520	16.985073	6000.00	4.783976	17.065474

TABLE IV. - Continued.

EFDA	BE1S	SRD 92	H0/R	-233.5758MP	1563.0000NT	81.0000
	40.00	0.002115	0.000882	50.00	0.005147	0.001655
	60.00	0.009198	0.002935	70.00	0.014765	0.004746
	80.00	0.022746	0.007207	90.00	0.033900	0.010496
	100.00	0.048798	0.014801	120.00	0.089739	0.027050
	140.00	0.146577	0.044973	160.00	0.215170	0.068916
	180.00	0.291662	0.098615	200.00	0.373037	0.133524
	220.00	0.457027	0.173004	240.00	0.541938	0.216409
	260.00	0.626487	0.263132	280.00	0.709699	0.312616
	298.15	0.783417	0.359491	300.00	0.790769	0.364360
	350.00	0.979565	0.500696	400.00	1.146974	0.642667
	450.00	1.293960	0.786435	500.00	1.423344	0.929605
	600.00	1.640556	1.209051	700.00	1.817087	1.475631
	800.00	1.965326	1.728209	900.00	2.093405	1.967254
	1000.00	2.206761	2.193793	1100.00	2.309134	2.408997
	1200.00	2.403164	2.614002	1300.00	2.490766	2.809854
	1400.00	2.573356	2.997490	1500.00	2.652004	3.177735
	1543.00	2.684823	3.253153	1543.00	3.207065	3.253153
	1563.00	3.212197	3.294488	1563.00	3.827791	3.294488
	1600.00	3.821266	3.383969	1700.00	3.805051	3.615135
	1800.00	3.790637	3.832210	1900.00	3.777741	4.036807
	2000.00	3.766134	4.230280	2100.00	3.755633	4.413772
	2200.00	3.746087	4.588260	2300.00	3.737370	4.754585
	2400.00	3.729380	4.913475	2500.00	3.722029	5.065565
	2600.00	3.715244	5.211411	2700.00	3.708961	5.351507
	2800.00	3.703127	5.486286	2900.00	3.697695	5.616138
	3000.00	3.692626	5.741409	3100.00	3.687883	5.862411
	3200.00	3.683437	5.979426	3300.00	3.679261	6.092707
	3400.00	3.675330	6.202485	3500.00	3.671623	6.308969
	3600.00	3.668123	6.412353	3700.00	3.664812	6.512810
	3800.00	3.661675	6.610502	3900.00	3.658699	6.705577
	4000.00	3.655872	6.798171	4100.00	3.653182	6.888411
	4200.00	3.650621	6.976413	4300.00	3.648179	7.062285
	4400.00	3.645848	7.146128	4500.00	3.643620	7.228035
	4600.00	3.641490	7.308095	4700.00	3.639450	7.386387
	4800.00	3.637495	7.462989	4900.00	3.635619	7.537973
	5000.00	3.633819	7.611404	5100.00	3.632089	7.683346
	5200.00	3.630426	7.753858	5300.00	3.628826	7.822995
	5400.00	3.627285	7.890811	5500.00	3.625800	7.957355
	5600.00	3.624368	8.022674	5700.00	3.622986	8.086811
	5800.00	3.621652	8.149810	5900.00	3.620363	8.211709
	6000.00	3.619117	8.272546			

TABLE IV. - Continued.

EFDA	BR2S	TPIS89	H0/R	-2949.0613MP	265.9000NT	99.0000
	5.00	0.009862	0.003488	10.00	0.084190	0.021529
	15.00	0.240543	0.087558	20.00	0.481087	0.185579
	25.00	0.755306	0.321727	30.00	1.034336	0.486018
	35.00	1.305807	0.664123	40.00	1.557518	0.854530
	45.00	1.788039	1.051816	50.00	1.998915	1.251186
	60.00	2.365343	1.649446	70.00	2.671749	2.038210
	80.00	2.931622	2.413852	90.00	3.159136	2.772062
	100.00	3.359188	3.115397	110.00	3.537080	3.445051
	120.00	3.698354	3.760173	130.00	3.844993	4.062509
	140.00	3.980133	4.352649	150.00	4.105273	4.631742
	160.00	4.221536	4.901071	170.00	4.331195	5.160284
	180.00	4.434684	5.410996	190.00	4.532976	5.653553
	200.00	4.626851	5.888621	210.00	4.717513	6.116198
	220.00	4.804853	6.337716	230.00	4.889828	6.553300
	240.00	4.973234	6.763357	250.00	5.056221	6.968059
	260.00	5.139301	7.167979	265.90	5.188553	7.283619
	265.90	9.970472	7.283822	270.00	9.960721	7.436335
	280.00	9.935729	7.797968	290.00	9.909556	8.146228
	298.15	9.891200	8.415351	300.00	9.886732	8.476346
	332.50	9.806122	9.488942	340.00	9.789597	9.707401
	360.00	9.748880	10.265784	380.00	9.712450	10.791886
	400.00	9.679662	11.289221	500.00	9.555069	13.434758
	600.00	9.472007	15.169051	700.00	9.412677	16.624477
	800.00	9.368180	17.878328	900.00	9.333571	18.979662
	1000.00	9.305883	19.961568	1100.00	9.283230	20.847416
	1200.00	9.264352	21.654330	1300.00	9.248379	22.395226
	1400.00	9.234687	23.080091	1500.00	9.222821	23.716804
	1600.00	9.212438	24.311693	1700.00	9.203277	24.869913
	1800.00	9.195134	25.395723	1900.00	9.187848	25.892680
	2000.00	9.181290	26.363785	2100.00	9.175357	26.811596
	2200.00	9.169964	27.238307	2300.00	9.165039	27.645818
	2400.00	9.160525	28.035782	2500.00	9.156372	28.409647
	2600.00	9.152538	28.768691	2700.00	9.148988	29.114043
	2800.00	9.145692	29.446710	2900.00	9.142623	29.767590
	3000.00	9.139759	30.077491	3100.00	9.137080	30.377138
	3200.00	9.134568	30.667188	3300.00	9.132208	30.948237
	3400.00	9.129987	31.220827	3500.00	9.127893	31.485453
	3600.00	9.125916	31.742565	3700.00	9.124045	31.992580
	3800.00	9.122273	32.235879	3900.00	9.120591	32.472813
	4000.00	9.118994	32.703706	4100.00	9.117474	32.928859
	4200.00	9.116027	33.148550	4300.00	9.114647	33.363038
	4400.00	9.113330	33.572564	4500.00	9.112072	33.777353
	4600.00	9.110868	33.977613	4700.00	9.109716	34.173541
	4800.00	9.108611	34.365319	4900.00	9.107552	34.553122
	5000.00	9.106534	34.737108	5100.00	9.105557	34.917432
	5200.00	9.104618	35.094235	5300.00	9.103713	35.267653
	5400.00	9.102843	35.437813	5500.00	9.102004	35.604835
	5600.00	9.101195	35.768832	5700.00	9.100414	35.929912
	5800.00	9.099660	36.088178	5900.00	9.098932	36.243725
	6000.00	9.098228	36.396646			

TABLE IV. - Continued.

EFDA C 1S X 4/83 H0/R -126.7062MP 0.0000NT 89.0000

10.00	0.002381	-0.001179	20.00	0.003488	0.001443
30.00	0.007481	0.003584	40.00	0.012971	0.006513
50.00	0.020230	0.010079	60.00	0.028925	0.014493
70.00	0.038767	0.019685	80.00	0.049599	0.025571
90.00	0.061314	0.032137	100.00	0.073843	0.039212
110.00	0.087126	0.046857	120.00	0.101108	0.055004
130.00	0.115757	0.063688	140.00	0.131019	0.072842
150.00	0.146868	0.082370	160.00	0.163254	0.092444
170.00	0.180153	0.102846	180.00	0.197519	0.113623
190.00	0.215331	0.124798	200.00	0.233544	0.136292
210.00	0.252107	0.148158	220.00	0.270978	0.160317
230.00	0.290100	0.172705	240.00	0.309454	0.185464
250.00	0.329001	0.198511	260.00	0.348709	0.211757
270.00	0.368557	0.225345	273.15	0.374835	0.229651
280.00	0.388520	0.239057	290.00	0.408575	0.253039
298.15	0.424975	0.264663	300.00	0.428688	0.267324
320.00	0.468984	0.296184	340.00	0.509244	0.325802
360.00	0.549441	0.356084	380.00	0.589458	0.386787
400.00	0.629261	0.418064	420.00	0.668739	0.449667
440.00	0.707881	0.481726	460.00	0.746599	0.514088
480.00	0.784823	0.546585	500.00	0.822514	0.579493
550.00	0.914152	0.662128	600.00	1.001622	0.745444
650.00	1.084628	0.829014	700.00	1.163061	0.912226
800.00	1.306511	1.077153	900.00	1.433237	1.238477
1000.00	1.545371	1.395392	1100.00	1.644770	1.547481
1200.00	1.733315	1.694427	1300.00	1.812587	1.836456
1400.00	1.884142	1.973332	1500.00	1.948802	2.105676
1600.00	2.007710	2.233430	1700.00	2.061669	2.356752
1800.00	2.111236	2.476046	1900.00	2.157041	2.591405
2000.00	2.199468	2.703046	2100.00	2.238943	2.811385
2200.00	2.275868	2.916380	2300.00	2.310419	3.018338
2400.00	2.342892	3.117442	2500.00	2.373585	3.213635
2600.00	2.402519	3.307258	2700.00	2.429978	3.398508
2800.00	2.456076	3.487389	2900.00	2.480914	3.573922
3000.00	2.504698	3.658384	3100.00	2.527335	3.740984
3200.00	2.549083	3.821587	3300.00	2.569950	3.900305
3400.00	2.590015	3.977299	3500.00	2.609380	4.052709
3600.00	2.628003	4.126454	3700.00	2.646042	4.198739
3800.00	2.663479	4.269461	3900.00	2.680362	4.338933
4000.00	2.696792	4.406934	4100.00	2.712684	4.473789
4200.00	2.728162	4.539374	4300.00	2.743257	4.603658
4400.00	2.758048	4.666803	4500.00	2.772396	4.728948
4600.00	2.786381	4.790013	4700.00	2.800027	4.850093
4800.00	2.813355	4.909289	4900.00	2.826384	4.967460
5000.00	2.839374	5.024590			

TABLE IV. - Continued.

EFDA	CA1S	SRD 92	HO/R	-695.5244MP	1115.0000NT	79.0000
	80.00	0.966374	0.540270	90.00	1.109051	0.662481
	100.00	1.236807	0.786069	120.00	1.453252	1.031422
	140.00	1.628207	1.269039	160.00	1.772066	1.496146
	180.00	1.892326	1.712010	200.00	1.994331	1.916808
	220.00	2.081960	2.111099	240.00	2.158099	2.295592
	260.00	2.224962	2.471028	280.00	2.284291	2.638128
	298.15	2.332800	2.783130	300.00	2.337543	2.797574
	350.00	2.451828	3.166800	400.00	2.547475	3.500597
	450.00	2.631909	3.805607	500.00	2.709222	4.086958
	550.00	2.781836	4.348610	600.00	2.851273	4.593657
	650.00	2.918528	4.824549	700.00	2.984281	5.043249
	716.00	3.005087	5.110927	716.00	3.161305	5.110927
	800.00	3.208423	5.464253	900.00	3.259873	5.845122
	1000.00	3.315326	6.191387	1100.00	3.381003	6.510352
	1115.00	3.392012	6.556219	1115.00	4.313196	6.556219
	1200.00	4.331409	6.873774	1300.00	4.349787	7.221217
	1400.00	4.365540	7.544162	1500.00	4.379192	7.845830
	1600.00	4.391138	8.128846	1700.00	4.401678	8.395380
	1800.00	4.411047	8.647243	1900.00	4.419430	8.885965
	2000.00	4.426975	9.112847	2100.00	4.433801	9.329008
	2200.00	4.440006	9.535414	2300.00	4.445672	9.732907
	2400.00	4.450866	9.922224	2500.00	4.455644	10.104015
	2600.00	4.460055	10.278856	2700.00	4.464139	10.447257
	2800.00	4.467931	10.609677	2900.00	4.471462	10.766525
	3000.00	4.474758	10.918171	3100.00	4.477840	11.064948
	3200.00	4.480730	11.207160	3300.00	4.483445	11.345081
	3400.00	4.486001	11.478964	3500.00	4.488410	11.609037
	3600.00	4.490685	11.735512	3700.00	4.492838	11.858581
	3800.00	4.494877	11.978425	3900.00	4.496811	12.095207
	4000.00	4.498649	12.209079	4100.00	4.500397	12.320184
	4200.00	4.502062	12.428653	4300.00	4.503650	12.534608
	4400.00	4.505165	12.638162	4500.00	4.506613	12.739422
	4600.00	4.507998	12.838488	4700.00	4.509324	12.935452
	4800.00	4.510595	13.030402	4900.00	4.511814	13.123420
	5000.00	4.512984	13.214583	5100.00	4.514108	13.303963
	5200.00	4.515189	13.391629	5300.00	4.516230	13.477645
	5400.00	4.517231	13.562072	5500.00	4.518197	13.644968
	5600.00	4.519127	13.726388	5700.00	4.520026	13.806383
	5800.00	4.520893	13.885001	5900.00	4.521731	13.962290
	6000.00	4.522541	14.038295			

TABLE IV. - Continued.

EFDA	CD1S	CODA89	H0/R	-751.3371MP		0.0000NT	63.0000
	100.00	1.635695	1.395151		200.00	2.252087	2.755424
	298.15	2.519997	3.710075		300.00	2.523701	3.725736
	400.00	2.690477	4.476030		500.00	2.818687	5.090498
	594.26	2.924126	5.586346		594.26	4.150607	5.586346
	600.00	4.145301	5.626233		700.00	4.066847	6.259032
	800.00	4.008006	6.798067		900.00	3.962241	7.267394
	1000.00	3.925630	7.682896		1100.00	3.895674	8.055598
	1200.00	3.870712	8.393464		1300.00	3.849590	8.702430
	1400.00	3.831485	8.987036		1500.00	3.815794	9.250833
	1600.00	3.802065	9.496651		1700.00	3.789950	9.726779
	1800.00	3.779182	9.943096		1900.00	3.769547	10.147163
	2000.00	3.760876	10.340291		2100.00	3.753031	10.523592
	2200.00	3.745899	10.698016		2300.00	3.739387	10.864382
	2400.00	3.733417	11.023401		2500.00	3.727926	11.175694
	2600.00	3.722856	11.321805		2700.00	3.718162	11.462218
	2800.00	3.713804	11.597359		2900.00	3.709746	11.727610
	3000.00	3.705958	11.853311		3100.00	3.702415	11.974771
	3200.00	3.699094	12.092265		3300.00	3.695973	12.206044
	3400.00	3.693037	12.316335		3500.00	3.690268	12.423347
	3600.00	3.687653	12.527268		3700.00	3.685179	12.628272
	3800.00	3.682835	12.726518		3900.00	3.680612	12.822152
	4000.00	3.678500	12.915310		4100.00	3.676490	13.006117
	4200.00	3.674577	13.094689		4300.00	3.672752	13.181132
	4400.00	3.671011	13.265546		4500.00	3.669347	13.348026
	4600.00	3.667755	13.428656		4700.00	3.666231	13.507519
	4800.00	3.664770	13.584691		4900.00	3.663369	13.660241
	5000.00	3.662024	13.734237		5100.00	3.660732	13.806742
	5200.00	3.659490	13.877815		5300.00	3.658294	13.947510
	5400.00	3.657143	14.015880		5500.00	3.656033	14.082976
	5600.00	3.654963	14.148842		5700.00	3.653931	14.213524
	5800.00	3.652934	14.277064		5900.00	3.651971	14.339500
	6000.00	3.651041	14.400872				

TABLE IV. - Continued.

EFDA	CL2G	TPIS89	HO/R	-1104.2275MP	0.0000NT	61.0000
	100.00	3.502353	19.230108	200.00	3.578125	21.674899
	298.15	3.703597	23.126809	300.00	3.706016	23.149648
	400.00	3.822881	24.232387	500.00	3.917295	25.096068
	600.00	3.992466	25.817226	700.00	4.053032	26.437285
	800.00	4.102666	26.981800	900.00	4.143943	27.467560
	1000.00	4.179010	27.906129	1100.00	4.209231	28.305764
	1200.00	4.235518	28.673251	1300.00	4.258779	29.013216
	1400.00	4.279575	29.329544	1500.00	4.298240	29.625514
	1600.00	4.315324	29.903340	1700.00	4.330964	30.165530
	1800.00	4.345668	30.413503	1900.00	4.359331	30.648806
	2000.00	4.372349	30.872726	2100.00	4.384814	31.086374
	2200.00	4.396966	31.290593	2300.00	4.408951	31.486320
	2400.00	4.420889	31.674276	2500.00	4.432930	31.854912
	2600.00	4.445202	32.029064	2700.00	4.457767	32.197029
	2800.00	4.470724	32.359430	2900.00	4.484114	32.516588
	3000.00	4.497974	32.668824	3100.00	4.512376	32.816431
	3200.00	4.527193	32.960013	3300.00	4.542460	33.099537
	3400.00	4.558103	33.235318	3500.00	4.574090	33.367749
	3600.00	4.590324	33.496805	3700.00	4.606688	33.622844
	3800.00	4.623140	33.745908	3900.00	4.639551	33.866128
	4000.00	4.655832	33.983830	4100.00	4.671877	34.099004
	4200.00	4.687616	34.211837	4300.00	4.702959	34.322300
	4400.00	4.717768	34.430530	4500.00	4.732025	34.536786
	4600.00	4.745663	34.640896	4700.00	4.758593	34.743067
	4800.00	4.770758	34.843357	4900.00	4.782133	34.941913
	5000.00	4.792691	35.038638	5100.00	4.802388	35.133579
	5200.00	4.811225	35.226973	5300.00	4.819162	35.318623
	5400.00	4.826226	35.408860	5500.00	4.832399	35.497462
	5600.00	4.837664	35.584567	5700.00	4.842069	35.670246
	5800.00	4.845617	35.754498	5900.00	4.848332	35.837297
	6000.00	4.850214	35.918764			
EFDA	CO1S	J 9/67	HO/R	-573.8161MP	0.0000NT	72.0000
	100.00	0.627818	0.295989	150.00	1.104094	0.606289
	200.00	1.461902	1.014251	250.00	1.725658	1.369894
	298.15	1.924589	1.691620	300.00	1.931162	1.703568
	350.00	2.089291	2.013537	400.00	2.220516	2.301338
	450.00	2.334072	2.569644	500.00	2.435020	2.820852
	550.00	2.526142	3.057229	600.00	2.609294	3.280771
	700.00	2.758173	3.694402	700.10	2.758294	3.694822
	700.10	2.835944	3.694822	800.00	2.954774	4.080758
	900.00	3.073342	4.435579	1000.00	3.195618	4.765645
	1100.00	3.324528	5.076328	1200.00	3.462020	5.371333
	1300.00	3.619715	5.654554	1394.00	3.795028	5.913180
	1394.00	3.795028	5.913180	1400.00	3.804193	5.929393
	1500.00	3.883171	6.194873	1600.00	3.933109	6.447178
	1700.00	3.970239	6.686794	1768.00	3.992638	6.842910
	1768.00	5.094149	6.842910	1800.00	5.090184	6.934252
	1900.00	5.078655	7.209149	2000.00	5.068278	7.469382
	2100.00	5.058890	7.716433	2200.00	5.050355	7.951573
	2300.00	5.042562	8.175895	2400.00	5.035419	8.390352
	2500.00	5.028847	8.595773	2600.00	5.022781	8.792888
	2700.00	5.017164	8.982343	2800.00	5.011948	9.164710
	2900.00	5.007092	9.340500	3000.00	5.002560	9.510171
	3100.00	4.998320	9.674134	3200.00	4.994345	9.832761
	3300.00	4.990611	9.986387	3400.00	4.987097	10.135319
	3500.00	4.983783	10.279834	3600.00	4.980654	10.420188
	3700.00	4.977693	10.556612	3800.00	4.974889	10.689320
	3900.00	4.972228	10.818511	4000.00	4.969701	10.944365
	4100.00	4.967296	11.067050	4200.00	4.965006	11.186722
	4300.00	4.962823	11.303525	4400.00	4.960739	11.417594
	4500.00	4.958747	11.529053	4600.00	4.956843	11.638020
	4700.00	4.955019	11.744603	4800.00	4.953271	11.848905
	4900.00	4.951594	11.951021	5000.00	4.949985	12.051040
	5100.00	4.948439	12.149047	5200.00	4.946952	12.245122
	5300.00	4.945521	12.339339	5400.00	4.944143	12.431768
	5500.00	4.942816	12.522477	5600.00	4.941536	12.611527
	5700.00	4.940300	12.698979	5800.00	4.939107	12.784890
	5900.00	4.937955	12.869311	6000.00	4.936841	12.952294

TABLE IV. - Continued.

EFDA	CR1S	J 6/73	H0/R	-487.9422MP		2130.0000NT	70.0000
	100.00	0.374045	0.141439	150.00	0.788180	0.371840	
	200.00	1.139574	0.648745	250.00	1.421611	0.934511	
	298.15	1.636566	1.204010	300.00	1.643713	1.214423	
	311.50	1.688051	1.276766	311.50	1.688437	1.276766	
	350.00	1.820226	1.481592	400.00	1.965840	1.734317	
	450.00	2.089787	1.973110	500.00	2.197363	2.198927	
	550.00	2.291941	2.412967	600.00	2.376167	2.616069	
	700.00	2.520379	2.993596	800.00	2.641166	3.338140	
	900.00	2.747807	3.655577	1000.00	2.847793	3.950323	
	1100.00	2.946000	4.226281	1200.00	3.044377	4.486795	
	1300.00	3.144642	4.734476	1400.00	3.247421	4.971223	
	1500.00	3.352934	5.198863	1600.00	3.461043	5.418735	
	1700.00	3.571644	5.631905	1800.00	3.684589	5.839243	
	1900.00	3.799762	6.041468	2000.00	3.916887	6.239333	
	2100.00	4.035859	6.433309	2130.00	4.071902	6.490813	
	2130.00	5.229559	6.490813	2200.00	5.213673	6.659655	
	2300.00	5.192656	6.890941	2400.00	5.173391	7.111526	
	2500.00	5.155666	7.322350	2600.00	5.139306	7.524236	
	2700.00	5.124157	7.717907	2800.00	5.110090	7.904003	
	2900.00	5.096993	8.083092	3000.00	5.084769	8.255679	
	3100.00	5.073334	8.422220	3200.00	5.062614	8.583120	
	3300.00	5.052544	8.738750	3400.00	5.043065	8.889441	
	3500.00	5.034129	9.035497	3600.00	5.025689	9.177193	
	3700.00	5.017705	9.314782	3800.00	5.010141	9.448494	
	3900.00	5.002965	9.578541	4000.00	4.996148	9.705119	
	4100.00	4.989664	9.828406	4200.00	4.983488	9.948570	
	4300.00	4.977600	10.065765	4400.00	4.971979	10.180132	
	4500.00	4.966608	10.291806	4600.00	4.961470	10.400910	
	4700.00	4.956552	10.507560	4800.00	4.951838	10.611862	
	4900.00	4.947316	10.713919	5000.00	4.942976	10.813824	
	5100.00	4.938805	10.911666	5200.00	4.934795	11.007530	
	5300.00	4.930936	11.101492	5400.00	4.927221	11.193627	
	5500.00	4.923640	11.284004	5600.00	4.920187	11.372689	
	5700.00	4.916856	11.459745	5800.00	4.913639	11.545230	
	5900.00	4.910531	11.629199	6000.00	4.907527	11.711705	
EFDA	CS1S	CODA89	H0/R	-927.4148MP		301.5900NT	23.0000
	100.00	2.585841	4.026455	200.00	2.903959	5.933001	
	298.15	3.110565	7.140190	300.00	3.115437	7.159372	
	301.59	3.119351	7.176024	301.59	3.955219	7.176024	
	400.00	3.941303	8.291288	500.00	3.910513	9.167828	
	600.00	3.869340	9.877231	700.00	3.826014	10.470439	
	800.00	3.786754	10.978759	900.00	3.755951	11.422815	
	1000.00	3.736119	11.817413	1100.00	3.729624	12.173057	
	1200.00	3.737643	12.497830	1300.00	3.761265	12.797859	
	1400.00	3.801358	13.077929	1500.00	3.858476	13.342057	
	1600.00	3.932959	13.593390	1700.00	4.025281	13.834461	
	1800.00	4.135675	14.067562	1900.00	4.264390	14.294491	
	2000.00	4.411565	14.516911				

TABLE IV. - Continued.

EFDA	CU1S	CODA89	HO/R	-601.8394MP	1358.0000NT	63.0000
	100.00	0.804617	0.401707	200.00	1.612843	1.241204
	298.15	2.018579	1.968426	300.00	2.024172	1.980995
	400.00	2.267722	2.599311	500.00	2.431653	3.123936
	600.00	2.552165	3.578443	700.00	2.646492	3.979274
	800.00	2.724604	4.337868	900.00	2.792307	4.662852
	1000.00	2.854047	4.960124	1100.00	2.912871	5.234934
	1200.00	2.971512	5.490923	1300.00	3.032049	5.731186
	1358.00	3.068876	5.864312	1358.00	4.232624	5.864312
	1400.00	4.223993	5.993102	1500.00	4.205387	6.283878
	1600.00	4.189107	6.554757	1700.00	4.174743	6.808280
	1800.00	4.161974	7.046533	1900.00	4.150550	7.271248
	2000.00	4.140268	7.483877	2100.00	4.130965	7.685653
	2200.00	4.122508	7.877627	2300.00	4.114787	8.060707
	2400.00	4.107708	8.235679	2500.00	4.101197	8.403230
	2600.00	4.095186	8.563964	2700.00	4.089620	8.718412
	2800.00	4.084452	8.867047	2900.00	4.079640	9.010291
	3000.00	4.075149	9.148520	3100.00	4.070948	9.282074
	3200.00	4.067009	9.411259	3300.00	4.063309	9.536350
	3400.00	4.059827	9.657600	3500.00	4.056543	9.775236
	3600.00	4.053443	9.889469	3700.00	4.050509	10.000489
	3800.00	4.047730	10.108471	3900.00	4.045094	10.213579
	4000.00	4.042589	10.315960	4100.00	4.040207	10.415752
	4200.00	4.037938	10.513084	4300.00	4.035775	10.608073
	4400.00	4.033710	10.700830	4500.00	4.031736	10.791457
	4600.00	4.029849	10.880049	4700.00	4.028042	10.966696
	4800.00	4.026310	11.051482	4900.00	4.024648	11.134484
	5000.00	4.023054	11.215777	5100.00	4.021521	11.295429
	5200.00	4.020048	11.373505	5300.00	4.018630	11.450066
	5400.00	4.017265	11.525170	5500.00	4.015950	11.598871
	5600.00	4.014681	11.671221	5700.00	4.013457	11.742268
	5800.00	4.012275	11.812059	5900.00	4.011134	11.880637
	6000.00	4.010030	11.948043			

TABLE IV. - Continued.

EFDA	D 2G	TPIS89	H0/R	-1030.6203MP		0.0000NT	101.0000
	100.00	3.307511	10.257493		200.00	3.430189	12.602578
	298.15	3.456718	13.977833		300.00	3.457050	13.999149
	400.00	3.471383	14.995712		500.00	3.481666	15.771654
	600.00	3.492531	16.407258		700.00	3.505618	16.946585
	800.00	3.522198	17.415788		900.00	3.542311	17.831665
	1000.00	3.565015	18.206102		1100.00	3.590043	18.547066
	1200.00	3.616613	18.860508		1300.00	3.643998	19.151125
	1400.00	3.671852	19.422150		1500.00	3.699601	19.676441
	1600.00	3.727114	19.916176		1700.00	3.754431	20.142875
	1800.00	3.780919	20.358256		1900.00	3.806897	20.563323
	2000.00	3.832022	20.759260		2100.00	3.856414	20.946909
	2200.00	3.880120	21.126826		2300.00	3.903124	21.299747
	2400.00	3.925364	21.466336		2500.00	3.946738	21.627055
	2600.00	3.967671	21.782201		2700.00	3.987767	21.932413
	2800.00	4.007500	22.077694		2900.00	4.026495	22.218662
	3000.00	4.044905	22.355525		3100.00	4.062826	22.488427
	3200.00	4.080265	22.617720		3300.00	4.097341	22.743530
	3400.00	4.113942	22.866084		3500.00	4.130076	22.985619
	3600.00	4.146048	23.102187		3700.00	4.161580	23.215949
	3800.00	4.176737	23.327078		3900.00	4.191641	23.435815
	4000.00	4.206312	23.542139		4100.00	4.220618	23.646182
	4200.00	4.234816	23.748047		4300.00	4.248662	23.847860
	4400.00	4.262370	23.945645		4500.00	4.275843	24.041620
	4600.00	4.289070	24.135797		4700.00	4.302169	24.228177
	4800.00	4.315149	24.318873		4900.00	4.327918	24.407976
	5000.00	4.340416	24.495544		5100.00	4.352920	24.581544
	5200.00	4.365081	24.666203		5300.00	4.377102	24.749439
	5400.00	4.388766	24.831467		5500.00	4.400553	24.912050
	5600.00	4.411983	24.991426		5700.00	4.423160	25.069612
	5800.00	4.434221	25.146711		5900.00	4.445050	25.222600
	6000.00	4.455518	25.297405		6200.00	4.476080	25.443782
	6400.00	4.495696	25.586174		6600.00	4.514215	25.724852
	6800.00	4.531643	25.859810		7000.00	4.547887	25.991502
	7200.00	4.563045	26.119830		7400.00	4.576993	26.245037
	7600.00	4.589749	26.367228		7800.00	4.601295	26.486660
	8000.00	4.611632	26.603211		8200.00	4.620776	26.717227
	8400.00	4.628596	26.828717		8600.00	4.635326	26.937690
	8800.00	4.640861	27.044249		9000.00	4.645188	27.148649
	9200.00	4.648556	27.250761		9400.00	4.650731	27.350818
	9600.00	4.652039	27.448736		9800.00	4.652287	27.544586
	10000.00	4.651563	27.638642		10500.00	4.646036	27.865471
	11000.00	4.635807	28.081367		11500.00	4.621500	28.287149
	12000.00	4.603694	28.483440		12500.00	4.583127	28.670946
	13000.00	4.560155	28.850273		13500.00	4.535383	29.021898
	14000.00	4.509159	29.186437		14500.00	4.481974	29.344239
	15000.00	4.454074	29.495659		15500.00	4.425686	29.641193
	16000.00	4.396945	29.781307		16500.00	4.368079	29.916134
	17000.00	4.339206	30.046156		17500.00	4.310588	30.171473
	18000.00	4.282084	30.292588		18500.00	4.254067	30.409487
	19000.00	4.226397	30.522551		19500.00	4.199098	30.631996
	20000.00	4.172274	30.737960				

TABLE IV. - Continued.

EFDA	E 1G	L 6/88	HO/R	-745.3750MP	0.0000NT	100.0000
	200.00	2.500000	-0.975019	298.15	2.500000	0.023179
	300.00	2.500000	0.038643	400.00	2.500000	0.757849
	500.00	2.500000	1.315708	600.00	2.500000	1.771511
	700.00	2.500000	2.156888	800.00	2.500000	2.490717
	900.00	2.500000	2.785174	1000.00	2.500000	3.048575
	1100.00	2.500000	3.286851	1200.00	2.500000	3.504379
	1300.00	2.500000	3.704486	1400.00	2.500000	3.889756
	1500.00	2.500000	4.062238	1600.00	2.500000	4.223585
	1700.00	2.500000	4.375146	1800.00	2.500000	4.518042
	1900.00	2.500000	4.653210	2000.00	2.500000	4.781443
	2100.00	2.500000	4.903419	2200.00	2.500000	5.019719
	2300.00	2.500000	5.130848	2400.00	2.500000	5.237247
	2500.00	2.500000	5.339302	2600.00	2.500000	5.437354
	2700.00	2.500000	5.531705	2800.00	2.500000	5.622624
	2900.00	2.500000	5.710352	3000.00	2.500000	5.795106
	3100.00	2.500000	5.877081	3200.00	2.500000	5.956453
	3300.00	2.500000	6.033382	3400.00	2.500000	6.108014
	3500.00	2.500000	6.180483	3600.00	2.500000	6.250910
	3700.00	2.500000	6.319408	3800.00	2.500000	6.386078
	3900.00	2.500000	6.451017	4000.00	2.500000	6.514311
	4100.00	2.500000	6.576043	4200.00	2.500000	6.636287
	4300.00	2.500000	6.695113	4400.00	2.500000	6.752587
	4500.00	2.500000	6.808769	4600.00	2.500000	6.863716
	4700.00	2.500000	6.917482	4800.00	2.500000	6.970115
	4900.00	2.500000	7.021663	5000.00	2.500000	7.072170
	5100.00	2.500000	7.121677	5200.00	2.500000	7.170222
	5300.00	2.500000	7.217843	5400.00	2.500000	7.264573
	5500.00	2.500000	7.310446	5600.00	2.500000	7.355492
	5700.00	2.500000	7.399741	5800.00	2.500000	7.443220
	5900.00	2.500000	7.485956	6000.00	2.500000	7.527974
	6200.00	2.500000	7.609949	6400.00	2.500000	7.689320
	6600.00	2.500000	7.766250	6800.00	2.500000	7.840882
	7000.00	2.500000	7.913351	7200.00	2.500000	7.983778
	7400.00	2.500000	8.052275	7600.00	2.500000	8.118946
	7800.00	2.500000	8.183885	8000.00	2.500000	8.247179
	8200.00	2.500000	8.308911	8400.00	2.500000	8.369155
	8600.00	2.500000	8.427981	8800.00	2.500000	8.485455
	9000.00	2.500000	8.541637	9200.00	2.500000	8.596584
	9400.00	2.500000	8.650350	9600.00	2.500000	8.702983
	9800.00	2.500000	8.754531	10000.00	2.500000	8.805038
	10500.00	2.500000	8.927014	11000.00	2.500000	9.043314
	11500.00	2.500000	9.154443	12000.00	2.500000	9.260842
	12500.00	2.500000	9.362897	13000.00	2.500000	9.460949
	13500.00	2.500000	9.555300	14000.00	2.500000	9.646219
	14500.00	2.500000	9.733947	15000.00	2.500000	9.818701
	15500.00	2.500000	9.900676	16000.00	2.500000	9.980047
	16500.00	2.500000	10.056976	17000.00	2.500000	10.131609
	17500.00	2.500000	10.204078	18000.00	2.500000	10.274505
	18500.00	2.500000	10.343002	19000.00	2.500000	10.409673
	19500.00	2.500000	10.474612	20000.00	2.500000	10.537906

TABLE IV. - Continued.

EFDA	F 2G	TPIS89	H0/R	-1061.4103MP		0.0000NT	61.0000
	100.00	3.496339	16.994591		200.00	3.509570	19.420741
	298.15	3.559987	20.830198		300.00	3.561287	20.852231
	400.00	3.638863	21.887181		500.00	3.720769	22.707925
	600.00	3.797022	23.393241		700.00	3.864891	23.983748
	800.00	3.924662	24.503693		900.00	3.976897	24.969113
	1000.00	4.023136	25.390617		1100.00	4.064247	25.775994
	1200.00	4.101113	26.131098		1300.00	4.134435	26.460761
	1400.00	4.164800	26.768363		1500.00	4.192801	27.056680
	1600.00	4.218730	27.328067		1700.00	4.242811	27.584583
	1800.00	4.265286	27.827671		1900.00	4.286217	28.058952
	2000.00	4.305778	28.279216		2100.00	4.323933	28.489820
	2200.00	4.340711	28.691338		2300.00	4.356135	28.884588
	2400.00	4.370174	29.070323		2500.00	4.382752	29.248979
	2600.00	4.393947	29.421080		2700.00	4.403733	29.587133
	2800.00	4.412090	29.747399		2900.00	4.419042	29.902335
	3000.00	4.424607	30.052283		3100.00	4.428805	30.197464
	3200.00	4.431726	30.338029		3300.00	4.433340	30.474489
	3400.00	4.433798	30.606813		3500.00	4.433061	30.735400
	3600.00	4.431263	30.860237		3700.00	4.428424	30.981545
	3800.00	4.424626	31.099602		3900.00	4.419914	31.214485
	4000.00	4.414354	31.326366		4100.00	4.408039	31.435274
	4200.00	4.401022	31.541396		4300.00	4.393325	31.644830
	4400.00	4.385048	31.745717		4500.00	4.376231	31.844259
	4600.00	4.366908	31.940299		4700.00	4.357137	32.034141
	4800.00	4.346971	32.125731		4900.00	4.336435	32.215287
	5000.00	4.325599	32.302737		5100.00	4.314480	32.388305
	5200.00	4.303118	32.471951		5300.00	4.291526	32.553902
	5400.00	4.279785	32.633959		5500.00	4.267859	32.712396
	5600.00	4.255821	32.789140		5700.00	4.243679	32.864426
	5800.00	4.231457	32.938108		5900.00	4.219161	33.010300
	6000.00	4.206833	33.081081				

TABLE IV. - Continued.

EFDA	FE1S	J 3/78	HO/R	-542.0644MP	0.0000NT	78.0000
	100.00	0.508749	0.220699	150.00	0.955759	0.514081
	200.00	1.318177	0.840579	250.00	1.602019	1.166395
	298.15	1.818093	1.467849	300.00	1.825323	1.479261
	350.00	2.006819	1.774402	400.00	2.159177	2.052857
	450.00	2.292913	2.314936	500.00	2.413612	2.562869
	550.00	2.525268	2.798077	600.00	2.629941	3.022467
	700.00	2.825697	3.442742	800.00	3.015812	3.832457
	900.00	3.219138	4.199098	950.00	3.326208	4.377674
	1000.00	3.468154	4.550599	1030.00	3.565062	4.654424
	1040.00	3.619946	4.689143	1041.00	3.625942	4.692648
	1042.00	3.632043	4.696169	1042.00	3.632043	4.696169
	1100.00	3.769861	4.897156	1184.00	3.872870	5.178776
	1184.00	3.964292	5.178776	1200.00	3.965858	5.232038
	1300.00	3.979327	5.549918	1400.00	3.998174	5.845461
	1500.00	4.021083	6.122149	1600.00	4.047518	6.382442
	1665.00	4.066194	6.543932	1665.00	4.126655	6.543932
	1700.00	4.143925	6.630011	1800.00	4.194140	6.868207
	1809.00	4.198693	6.889188	1809.00	5.116654	6.889188
	1900.00	5.136709	7.140808	2000.00	5.156643	7.404802
	2100.00	5.174678	7.656839	2200.00	5.191074	7.897950
	2300.00	5.206044	8.129037	2400.00	5.219766	8.350899
	2500.00	5.232391	8.564239	2600.00	5.244044	8.769687
	2700.00	5.254835	8.967804	2800.00	5.264854	9.159093
	2900.00	5.274183	9.344009	3000.00	5.282890	9.522960
	3100.00	5.291035	9.696319	3200.00	5.298670	9.864425
	3300.00	5.305844	10.027585	3400.00	5.312595	10.186081
	3500.00	5.318960	10.340173	3600.00	5.324972	10.490098
	3700.00	5.330659	10.636075	3800.00	5.336046	10.778306
	3900.00	5.341157	10.916979	4000.00	5.346013	11.052267
	4100.00	5.350632	11.184332	4200.00	5.355031	11.313322
	4300.00	5.359225	11.439378	4400.00	5.363228	11.562630
	4500.00	5.367054	11.683200	4600.00	5.370713	11.801203
	4700.00	5.374217	11.916744	4800.00	5.377575	12.029925
	4900.00	5.380795	12.140840	5000.00	5.383887	12.249578
	5100.00	5.386858	12.356223	5200.00	5.389714	12.460853
	5300.00	5.392462	12.563544	5400.00	5.395109	12.664365
	5500.00	5.397659	12.763384	5600.00	5.400119	12.860664
	5700.00	5.402492	12.956265	5800.00	5.404783	13.050244
	5900.00	5.406997	13.142655	6000.00	5.409136	13.233549

TABLE IV. - Continued.

EFDA	GE1S	TPIS91	H0/R	-557.6228MP	1211.4000NT	65.0000
	100.00	0.745684	0.440916	200.00	1.464308	1.202717
	298.15	1.870276	1.868973	300.00	1.875975	1.880560
	350.00	2.012994	2.180429	400.00	2.123619	2.456697
	450.00	2.214985	2.712260	500.00	2.291970	2.949726
	600.00	2.415434	3.379036	700.00	2.511322	3.758858
	800.00	2.589133	4.099442	900.00	2.654476	4.408273
	1000.00	2.710867	4.690936	1100.00	2.760618	4.951688
	1200.00	2.805309	5.193841	1211.40	2.810136	5.220389
	1211.40	6.486587	5.220389	1300.00	6.270737	5.670553
	1400.00	6.059934	6.127357	1500.00	5.877239	6.539075
	1600.00	5.717380	6.913169	1700.00	5.576328	7.255464
	1800.00	5.450949	7.570581	1900.00	5.338767	7.862239
	2000.00	5.237804	8.133470	2100.00	5.146456	8.386777
	2200.00	5.063412	8.624243	2300.00	4.987590	8.847623
	2400.00	4.918086	9.058404	2500.00	4.854142	9.257856
	2600.00	4.795118	9.447074	2700.00	4.740465	9.627005
	2800.00	4.689716	9.798476	2900.00	4.642467	9.962211
	3000.00	4.598368	10.118846	3100.00	4.557115	10.268945
	3200.00	4.518439	10.413011	3300.00	4.482107	10.551489
	3400.00	4.447913	10.684780	3500.00	4.415673	10.813244
	3600.00	4.385223	10.937207	3700.00	4.356420	11.056961
	3800.00	4.329133	11.172774	3900.00	4.303244	11.284887
	4000.00	4.278651	11.393523	4100.00	4.255257	11.498885
	4200.00	4.232977	11.601156	4300.00	4.211733	11.700509
	4400.00	4.191455	11.797101	4500.00	4.172078	11.891077
	4600.00	4.153544	11.982570	4700.00	4.135798	12.071705
	4800.00	4.118792	12.158598	4900.00	4.102480	12.243356
	5000.00	4.086820	12.326079	5100.00	4.071775	12.406859
	5200.00	4.057308	12.485784	5300.00	4.043387	12.562935
	5400.00	4.029982	12.638389	5500.00	4.017064	12.712217
	5600.00	4.004607	12.784486	5700.00	3.992588	12.855259
	5800.00	3.980983	12.924596	5900.00	3.969771	12.992553
	6000.00	3.958933	13.059182			

TABLE IV. - Continued.

EFDA	H 2G	TPIS78	H0/R	-1018.4727MP		0.0000NT	105.0000
	50.00	3.283456		6.053519	100.00	3.606991	8.507572
	150.00	3.483911		9.946319	200.00	3.423574	10.938292
	250.00	3.410464		11.700703	298.15	3.415974	12.301249
	300.00	3.416157		12.322355	350.00	3.425722	12.850050
	400.00	3.435602		13.308033	500.00	3.451598	14.076458
	600.00	3.463465		14.706849	700.00	3.473488	15.241423
	800.00	3.483260		15.705888	900.00	3.493667	16.116798
	1000.00	3.505601		16.485408	1100.00	3.519191	16.820128
	1200.00	3.534426		17.126985	1300.00	3.551295	17.410558
	1400.00	3.569448		17.674325	1500.00	3.588709	17.921349
	1600.00	3.608795		18.153596	1700.00	3.629489	18.372967
	1800.00	3.650623		18.580953	1900.00	3.671938	18.779017
	2000.00	3.693407		18.967905	2100.00	3.714836	19.148656
	2200.00	3.736175		19.321918	2300.00	3.757280	19.488440
	2400.00	3.778179		19.648792	2500.00	3.798802	19.803407
	2600.00	3.819088		19.952827	2700.00	3.839073	20.097375
	2800.00	3.858662		20.237388	2900.00	3.877937	20.373145
	3000.00	3.896889		20.504775	3100.00	3.915433	20.632965
	3200.00	3.933683		20.757479	3300.00	3.951591	20.878847
	3400.00	3.969154		20.997072	3500.00	3.986435	21.112452
	3600.00	4.003424		21.224877	3700.00	4.020113	21.334836
	3800.00	4.036556		21.442275	3900.00	4.052711	21.547355
	4000.00	4.068659		21.650116	4100.00	4.084328	21.750871
	4200.00	4.099796		21.849423	4300.00	4.115047	21.946026
	4400.00	4.130097		22.040785	4500.00	4.144932	22.133835
	4600.00	4.159593		22.225134	4700.00	4.174040	22.314724
	4800.00	4.188311		22.402685	4900.00	4.202392	22.489273
	5000.00	4.216294		22.574235	5100.00	4.230029	22.657921
	5200.00	4.243536		22.740151	5300.00	4.256874	22.821108
	5400.00	4.270007		22.900825	5500.00	4.282948	22.979293
	5600.00	4.295683		23.056521	5700.00	4.308204	23.132762
	5800.00	4.320501		23.207784	5900.00	4.332584	23.281695
	6000.00	4.344425		23.354647	6200.00	4.367408	23.497521
	6400.00	4.389386		23.636468	6600.00	4.410288	23.771801
	6800.00	4.430066		23.903808	7000.00	4.448679	24.032529
	7200.00	4.466092		24.158121	7400.00	4.482286	24.280722
	7600.00	4.497218		24.400376	7800.00	4.510889	24.517441
	8000.00	4.523276		24.631822	8200.00	4.534414	24.743604
	8400.00	4.544276		24.853052	8600.00	4.552925	24.959986
	8800.00	4.560347		25.064779	9000.00	4.566583	25.167390
	9200.00	4.571686		25.267767	9400.00	4.575676	25.366129
	9600.00	4.578597		25.462433	9800.00	4.580491	25.556878
	10000.00	4.581407		25.649414	10500.00	4.579748	25.872977
	11000.00	4.572992		26.085882	11500.00	4.561886	26.288943
	12000.00	4.547086		26.482830	12500.00	4.529235	26.667980
	13000.00	4.508882		26.845290	13500.00	4.486517	27.015110
	14000.00	4.462571		27.177731	14500.00	4.437406	27.333873
	15000.00	4.411329		27.483952	15500.00	4.384622	27.628165
	16000.00	4.357503		27.766899	16500.00	4.330153	27.900570
	17000.00	4.302735		28.029498	17500.00	4.275373	28.153801
	18000.00	4.248160		28.273864	18500.00	4.221203	28.389823
	19000.00	4.194557		28.502104	19500.00	4.168278	28.610650
	20000.00	4.142405		28.715903			

TABLE IV. - Continued.

EFDA	HE1G	L10/90	H0/R	-745.3750MP	0.0000NT	101.0000
	100.00	2.500000	9.941649	200.00	2.500000	11.674517
	298.15	2.500000	12.672716	300.00	2.500000	12.688180
	400.00	2.500000	13.407385	500.00	2.500000	13.965244
	600.00	2.500000	14.421048	700.00	2.500000	14.806425
	800.00	2.500000	15.140253	900.00	2.500000	15.434711
	1000.00	2.500000	15.698112	1100.00	2.500000	15.936388
	1200.00	2.500000	16.153916	1300.00	2.500000	16.354023
	1400.00	2.500000	16.539293	1500.00	2.500000	16.711775
	1600.00	2.500000	16.873121	1700.00	2.500000	17.024683
	1800.00	2.500000	17.167579	1900.00	2.500000	17.302747
	2000.00	2.500000	17.430980	2100.00	2.500000	17.552956
	2200.00	2.500000	17.669256	2300.00	2.500000	17.780385
	2400.00	2.500000	17.886784	2500.00	2.500000	17.988839
	2600.00	2.500000	18.086891	2700.00	2.500000	18.181242
	2800.00	2.500000	18.272161	2900.00	2.500000	18.359889
	3000.00	2.500000	18.444643	3100.00	2.500000	18.526617
	3200.00	2.500000	18.605989	3300.00	2.500000	18.682918
	3400.00	2.500000	18.757551	3500.00	2.500000	18.830020
	3600.00	2.500000	18.900447	3700.00	2.500000	18.968944
	3800.00	2.500000	19.035615	3900.00	2.500000	19.100554
	4000.00	2.500000	19.163848	4100.00	2.500000	19.225580
	4200.00	2.500000	19.285823	4300.00	2.500000	19.344650
	4400.00	2.500000	19.402124	4500.00	2.500000	19.458306
	4600.00	2.500000	19.513253	4700.00	2.500000	19.567018
	4800.00	2.500000	19.619652	4900.00	2.500000	19.671200
	5000.00	2.500000	19.721707	5100.00	2.500000	19.771214
	5200.00	2.500000	19.819759	5300.00	2.500000	19.867379
	5400.00	2.500000	19.914110	5500.00	2.500000	19.959982
	5600.00	2.500000	20.005029	5700.00	2.500000	20.049278
	5800.00	2.500000	20.092757	5900.00	2.500000	20.135493
	6000.00	2.500000	20.177511	6200.00	2.500000	20.259485
	6400.00	2.500000	20.338857	6600.00	2.500000	20.415786
	6800.00	2.500000	20.490419	7000.00	2.500000	20.562888
	7200.00	2.500000	20.633315	7400.00	2.500000	20.701812
	7600.00	2.500000	20.768483	7800.00	2.500000	20.833422
	8000.00	2.500000	20.896716	8200.00	2.500000	20.958448
	8400.00	2.500000	21.018691	8600.00	2.500000	21.077518
	8800.00	2.500000	21.134991	9000.00	2.500000	21.191174
	9200.00	2.500000	21.246121	9400.00	2.500000	21.299886
	9600.00	2.500000	21.352520	9800.00	2.500000	21.404068
	10000.00	2.500000	21.454575	10500.00	2.500000	21.576550
	11000.00	2.500000	21.692850	11500.00	2.500000	21.803980
	12000.00	2.500001	21.910379	12500.00	2.500002	22.012434
	13000.00	2.500004	22.110486	13500.00	2.500007	22.204837
	14000.00	2.500013	22.295756	14500.00	2.500024	22.383485
	15000.00	2.500041	22.468240	15500.00	2.500067	22.550216
	16000.00	2.500107	22.629591	16500.00	2.500166	22.706524
	17000.00	2.500251	22.781163	17500.00	2.500359	22.853640
	18000.00	2.500415	22.924072	18500.00	2.500513	22.992578
	19000.00	2.500703	23.059265	19500.00	2.500932	23.124224
	20000.00	2.501238	23.187546			
EFDA	HG1S	J12/61	H0/R	-1123.6982MP	0.0000NT	28.0000
	100.00	2.051835	2.424557	150.00	2.375766	3.324269
	200.00	2.580429	4.037159	234.29	2.693009	4.454495
	234.29	3.871291	4.454495	250.00	3.842920	4.704667
	298.15	3.768902	5.375112	300.00	3.766508	5.398314
	350.00	3.705742	5.974444	400.00	3.656259	6.465925
	450.00	3.615366	6.894092	500.00	3.581209	7.273068
	550.00	3.552388	7.613153	600.00	3.528370	7.921132
	700.00	3.491658	8.462023	800.00	3.467583	8.926654
	900.00	3.453000	9.334044	1000.00	3.445062	9.697505
	1100.00	3.442066	10.025595	1200.00	3.442676	10.325062
	1300.00	3.446061	10.600828	1400.00	3.451711	10.856408
	1500.00	3.459093	11.094741	1600.00	3.467958	11.318241
	1700.00	3.477903	11.528874	1800.00	3.488948	11.727944
	1900.00	3.500728	11.916897	2000.00	3.513256	12.096804

TABLE IV. - Continued.

EFDA	I 2S	TPIS89	H0/R	-1587.1050MP		386.7500NT	99.0000
	5.00	0.017319		0.005773	10.00	0.132299	0.043779
	15.00	0.368833		0.139435	20.00	0.673521	0.288652
	25.00	0.995849		0.471585	30.00	1.306952	0.679695
	35.00	1.587586		0.905886	40.00	1.861204	1.118286
	45.00	2.079364		1.364616	50.00	2.292378	1.594442
	60.00	2.662013		2.046142	70.00	2.977583	2.480345
	80.00	3.244328		2.895901	90.00	3.471842	3.291876
	100.00	3.669489		3.667925	110.00	3.842133	4.026160
	120.00	3.996026		4.367425	130.00	4.133645	4.692732
	140.00	4.257617		5.003542	150.00	4.368267	5.301575
	160.00	4.470348		5.586409	170.00	4.562541	5.860563
	180.00	4.647832		6.124060	190.00	4.726677	6.377285
	200.00	4.799441		6.621557	210.00	4.867566	6.857358
	220.00	4.931138		7.085204	230.00	4.991797	7.305861
	240.00	5.049406		7.519465	250.00	5.102886	7.726613
	260.00	5.153178		7.927929	270.00	5.200636	8.123541
	280.00	5.245993		8.313195	290.00	5.288636	8.497986
	298.15	5.323176		8.645055	300.00	5.330841	8.677922
	320.00	5.410722		9.024404	340.00	5.489340	9.355070
	360.00	5.570917		9.671112	380.00	5.656250	9.974497
	386.75	5.685966		10.074314	386.75	10.557474	10.074314
	400.00	10.524704		10.429398	500.00	10.333406	12.755782
	600.00	10.205874		14.627805	700.00	10.114779	16.193846
	800.00	10.046459		17.539824	900.00	9.993320	18.719935
	1000.00	9.950809		19.770558	1100.00	9.916028	20.717287
	1200.00	9.887043		21.578815	1300.00	9.862518	22.369207
	1400.00	9.841496		23.099309	1500.00	9.823277	23.777667
	1600.00	9.807336		24.411126	1700.00	9.793270	25.005262
	1800.00	9.780766		25.564669	1900.00	9.769579	26.093182
	2000.00	9.759511		26.594036	2100.00	9.750402	27.069980
	2200.00	9.742120		27.523375	2300.00	9.734559	27.956260
	2400.00	9.727628		28.370410	2500.00	9.721251	28.767381
	2600.00	9.715365		29.148539	2700.00	9.709915	29.515096
	2800.00	9.704854		29.868130	2900.00	9.700143	30.208603
	3000.00	9.695745		30.537378	3100.00	9.691631	30.855232
	3200.00	9.687774		31.162867	3300.00	9.684151	31.460920
	3400.00	9.680741		31.749970	3500.00	9.677526	32.030544
	3600.00	9.674490		32.303125	3700.00	9.671617	32.568157
	3800.00	9.668896		32.826045	3900.00	9.666314	33.077166
	4000.00	9.663862		33.321865	4100.00	9.661529	33.560462
	4200.00	9.659307		33.793254	4300.00	9.657189	34.020517
	4400.00	9.655166		34.242508	4500.00	9.653234	34.459466
	4600.00	9.651386		34.671613	4700.00	9.649616	34.879158
	4800.00	9.647920		35.082298	4900.00	9.646294	35.281214
	5000.00	9.644732		35.476079	5100.00	9.643232	35.667056
	5200.00	9.641789		35.854295	5300.00	9.640401	36.037940
	5400.00	9.639064		36.218127	5500.00	9.637776	36.394984
	5600.00	9.636534		36.568631	5700.00	9.635335	36.739183
	5800.00	9.634178		36.906748	5900.00	9.633060	37.071429
	6000.00	9.631979		37.233324			
EFDA	K 1S	CODA89	H0/R	-852.4856MP		336.8600NT	25.0000
	100.00	2.084308		2.196161	200.00	2.600875	3.829691
	298.15	2.859251		4.919921	300.00	2.863668	4.937513
	336.86	2.954843		5.274434	336.86	3.783527	5.274434
	400.00	3.790662		5.925364	500.00	3.781341	6.770573
	600.00	3.761096		7.458207	700.00	3.738903	8.036295
	800.00	3.719852		8.534267	900.00	3.706906	8.971532
	1000.00	3.701842		9.361826	1100.00	3.706007	9.714747
	1200.00	3.720203		10.037793	1300.00	3.745075	10.336453
	1400.00	3.780912		10.615246	1500.00	3.828167	10.877570
	1600.00	3.887030		11.126482	1700.00	3.957645	11.364244
	1800.00	4.040259		11.592652	1900.00	4.134940	11.813685
	2000.00	4.241801		12.028310	2100.00	4.360879	12.238175
	2200.00	4.492256		12.444040			

TABLE IV. - Continued.

EFDA	KR1G	L10/90	H0/R	-745.3750MP	0.0000NT	101.0000
	100.00	2.500000	14.503882	200.00	2.500000	16.236750
	298.15	2.500000	17.234948	300.00	2.500000	17.250413
	400.00	2.500000	17.969618	500.00	2.500000	18.527477
	600.00	2.500000	18.983281	700.00	2.500000	19.368657
	800.00	2.500000	19.702486	900.00	2.500000	19.996943
	1000.00	2.500000	20.260345	1100.00	2.500000	20.498620
	1200.00	2.500000	20.716149	1300.00	2.500000	20.916255
	1400.00	2.500000	21.101525	1500.00	2.500000	21.274007
	1600.00	2.500000	21.435354	1700.00	2.500000	21.586915
	1800.00	2.500000	21.729811	1900.00	2.500000	21.864979
	2000.00	2.500000	21.993213	2100.00	2.500000	22.115188
	2200.00	2.500000	22.231488	2300.00	2.500000	22.342618
	2400.00	2.500000	22.449017	2500.00	2.500000	22.551072
	2600.00	2.500000	22.649123	2700.00	2.500000	22.743474
	2800.00	2.500000	22.834393	2900.00	2.500000	22.922122
	3000.00	2.500000	23.006875	3100.00	2.500000	23.088850
	3200.00	2.500000	23.168222	3300.00	2.500000	23.245151
	3400.00	2.500000	23.319783	3500.00	2.500000	23.392252
	3600.00	2.500000	23.462679	3700.00	2.500000	23.531177
	3800.00	2.500000	23.597847	3900.00	2.500000	23.662786
	4000.00	2.500000	23.726081	4100.00	2.500000	23.787812
	4200.00	2.500000	23.848056	4300.00	2.500000	23.906882
	4400.00	2.500000	23.964356	4500.00	2.500000	24.020538
	4600.00	2.500000	24.075485	4700.00	2.500000	24.129251
	4800.00	2.500000	24.181885	4900.00	2.500000	24.233433
	5000.00	2.500000	24.283939	5100.00	2.500000	24.333446
	5200.00	2.500000	24.381991	5300.00	2.500000	24.429612
	5400.00	2.500000	24.476342	5500.00	2.500000	24.522215
	5600.00	2.500000	24.567261	5700.00	2.500000	24.611510
	5800.00	2.500001	24.654990	5900.00	2.500001	24.697726
	6000.00	2.500001	24.739743	6200.00	2.500002	24.821718
	6400.00	2.500003	24.901090	6600.00	2.500006	24.978019
	6800.00	2.500010	25.052652	7000.00	2.500017	25.125121
	7200.00	2.500027	25.195549	7400.00	2.500042	25.264047
	7600.00	2.500064	25.330719	7800.00	2.500095	25.395660
	8000.00	2.500140	25.458957	8200.00	2.500201	25.520693
	8400.00	2.500283	25.580943	8600.00	2.500394	25.639777
	8800.00	2.500543	25.697261	9000.00	2.500737	25.753458
	9200.00	2.500989	25.808424	9400.00	2.501310	25.862214
	9600.00	2.501716	25.914879	9800.00	2.502225	25.966468
	10000.00	2.502686	26.017014	10500.00	2.504702	26.139162
	11000.00	2.507943	26.255750	11500.00	2.512293	26.367292
	12000.00	2.518189	26.474282	12500.00	2.527097	26.577251
	13000.00	2.539013	26.676578	13500.00	2.552868	26.772511
	14000.00	2.567663	26.865254	14500.00	2.584726	26.955198
	15000.00	2.610370	27.043243	15500.00	2.641121	27.129323
	16000.00	2.677380	27.213733	16500.00	2.719470	27.296749
	17000.00	2.767613	27.378633	17500.00	2.821925	27.459628
	18000.00	2.882396	27.539958	18500.00	2.948888	27.619825
	19000.00	3.010985	27.697974	19500.00	3.055200	27.772459
	20000.00	3.098523	27.845674			
EFDA	LI1S	TPIS82	H0/R	-557.0984MP	453.6900NT	35.0000
	100.00	0.594142	0.287449	200.00	1.405976	0.981657
	250.00	1.669371	1.322026	298.15	1.868517	1.633794
	300.00	1.875440	1.645374	350.00	2.042779	1.947454
	400.00	2.189056	2.229915	453.69	2.337784	2.514841
	453.69	3.133074	2.514841	500.00	3.179505	2.821679
	600.00	3.247172	3.407889	700.00	3.288524	3.911792
	800.00	3.315319	4.352783	900.00	3.333655	4.744393
	1000.00	3.346997	5.096352	1100.00	3.357450	5.415862
	1200.00	3.366367	5.708388	1300.00	3.374656	5.978171
	1400.00	3.382946	6.228561	1500.00	3.391689	6.462255
	1600.00	3.401216	6.681449	1700.00	3.411776	6.887957
	1800.00	3.423559	7.083296	1900.00	3.436713	7.268744
	2000.00	3.451354	7.445391	2100.00	3.467577	7.614169
	2200.00	3.485457	7.775886	2300.00	3.505055	7.931247
	2400.00	3.526423	8.080866	2500.00	3.549603	8.225285
	2600.00	3.574630	8.364985	2700.00	3.601535	8.500391
	2800.00	3.630344	8.631885	2900.00	3.661077	8.759809
	3000.00	3.693756	8.884471			

TABLE IV. - Continued.

EFDA	MG1S	SRD 92	HO/R	-598.8520MP	923.0000NT	81.0000
	20.00	0.010668	0.004347	30.00	0.037776	0.012838
	40.00	0.099493	0.031357	50.00	0.188871	0.062749
	60.00	0.295747	0.106429	70.00	0.412549	0.160703
	80.00	0.533449	0.223666	90.00	0.653616	0.293464
	100.00	0.768804	0.368352	120.00	0.980146	0.527584
	140.00	1.165308	0.692914	160.00	1.325823	0.859253
	180.00	1.465181	1.023649	200.00	1.586781	1.184457
	220.00	1.693522	1.340807	240.00	1.787814	1.492288
	260.00	1.871663	1.638764	280.00	1.946761	1.780267
	298.15	2.008560	1.904487	300.00	2.014601	1.916930
	350.00	2.161055	2.238875	400.00	2.281029	2.535526
	450.00	2.381607	2.810162	500.00	2.467950	3.065665
	600.00	2.611855	3.528819	700.00	2.732278	3.940698
	800.00	2.840260	4.312687	900.00	2.942441	4.653155
	923.00	2.965598	4.727697	923.00	4.060161	4.727697
	1000.00	4.065178	5.053225	1100.00	4.070646	5.440942
	1200.00	4.075202	5.795336	1300.00	4.079057	6.121683
	1400.00	4.082361	6.424097	1500.00	4.085225	6.705851
	1600.00	4.087731	6.969587	1700.00	4.089942	7.217472
	1800.00	4.091907	7.451303	1900.00	4.093666	7.672589
	2000.00	4.095248	7.882608	2100.00	4.096680	8.082451
	2200.00	4.097982	8.273059	2300.00	4.099170	8.455248
	2400.00	4.100260	8.629730	2500.00	4.101262	8.797132
	2600.00	4.102188	8.958005	2700.00	4.103044	9.112839
	2800.00	4.103840	9.262071	2900.00	4.104580	9.406094
	3000.00	4.105272	9.545257	3100.00	4.105918	9.679879
	3200.00	4.106525	9.810246	3300.00	4.107094	9.936619
	3400.00	4.107630	10.059236	3500.00	4.108135	10.178314
	3600.00	4.108613	10.294050	3700.00	4.109064	10.406628
	3800.00	4.109492	10.516216	3900.00	4.109898	10.622967
	4000.00	4.110283	10.727025	4100.00	4.110650	10.828524
	4200.00	4.110999	10.927584	4300.00	4.111332	11.024322
	4400.00	4.111650	11.118843	4500.00	4.111954	11.211247
	4600.00	4.112244	11.301627	4700.00	4.112523	11.390069
	4800.00	4.112789	11.476654	4900.00	4.113045	11.561459
	5000.00	4.113290	11.644557	5100.00	4.113526	11.726013
	5200.00	4.113753	11.805892	5300.00	4.113971	11.884254
	5400.00	4.114181	11.961154	5500.00	4.114384	12.036648
	5600.00	4.114579	12.110785	5700.00	4.114767	12.183613
	5800.00	4.114949	12.255177	5900.00	4.115125	12.325522
	6000.00	4.115295	12.394686			

TABLE IV. - Continued.

EFDA	MN1S	J 9/67	HO/R	-600.6367MP		0.0000NT	73.0000
	100.00	0.714414	0.352997	150.00	1.179464	0.734659	
	200.00	1.537072	1.124901	250.00	1.807924	1.498705	
	298.15	2.014545	1.835351	300.00	2.021767	1.847734	
	350.00	2.195817	2.173051	400.00	2.342892	2.475913	
	500.00	2.589690	3.026516	550.00	2.689931	3.278190	
	600.00	2.781483	3.516182	700.00	2.945453	3.957539	
	800.00	3.090982	4.360570	900.00	3.223949	4.732383	
	980.00	3.323671	5.011168	980.00	3.596859	5.011168	
	1000.00	3.615487	5.084004	1100.00	3.701306	5.432726	
	1200.00	3.776931	5.758086	1300.00	3.844900	6.063080	
	1361.00	3.883158	6.240349	1361.00	4.070679	6.240349	
	1400.00	4.102209	6.355774	1412.00	4.111809	6.390794	
	1412.00	4.271859	6.390794	1500.00	4.343170	6.651224	
	1519.00	4.358126	6.706026	1519.00	5.312857	6.706026	
	1600.00	5.324122	6.982331	1700.00	5.336549	7.305485	
	1800.00	5.347595	7.610832	1900.00	5.357479	7.900231	
	2000.00	5.366374	8.175264	2100.00	5.374422	8.437288	
	2200.00	5.381739	8.687478	2300.00	5.388419	8.926855	
	2400.00	5.394542	9.156316	2500.00	5.400176	9.376647	
	2600.00	5.405376	9.588549	2700.00	5.410191	9.792641	
	2800.00	5.414663	9.989479	2900.00	5.418825	10.179560	
	3000.00	5.422711	10.363333	3100.00	5.426345	10.541202	
	3200.00	5.429753	10.713536	3300.00	5.432954	10.880668	
	3400.00	5.435966	11.042903	3500.00	5.438807	11.200520	
	3600.00	5.441489	11.353773	3700.00	5.444027	11.502900	
	3800.00	5.446431	11.648114	3900.00	5.448712	11.789618	
	4000.00	5.450879	11.927595	4100.00	5.452940	12.062217	
	4200.00	5.454903	12.193643	4300.00	5.456774	12.322022	
	4400.00	5.458561	12.447491	4500.00	5.460268	12.570180	
	4600.00	5.461901	12.690209	4700.00	5.463465	12.807690	
	4800.00	5.464963	12.922731	4900.00	5.466400	13.035429	
	5000.00	5.467780	13.145879	5100.00	5.469105	13.254169	
	5200.00	5.470380	13.360381	5300.00	5.471606	13.464593	
	5400.00	5.472787	13.566880	5500.00	5.473925	13.667312	
	5600.00	5.475023	13.765954	5700.00	5.476082	13.862869	
	5800.00	5.477104	13.958116	5900.00	5.478092	14.051753	
	6000.00	5.479047	14.143832				

TABLE IV. - Continued.

EFDA	MO1S	J 3/78	HO/R	-551.4456MP		0.0000NT	68.0000
	100.00	0.590534	0.254495	150.00	1.055985	0.585482
	200.00	1.403570	0.939081	250.00	1.660711	1.281374
	298.15	1.849558	1.590813	300.00	1.855792	1.602379
	350.00	2.007850	1.900258	400.00	2.130312	2.176617
	450.00	2.231708	2.433510	500.00	2.317395	2.673158
	550.00	2.391001	2.897705	600.00	2.455547	3.108582
	700.00	2.564020	3.495507	800.00	2.652592	3.843883
	900.00	2.727494	4.160705	1000.00	2.793069	4.451495
	1100.00	2.852188	4.720477	1200.00	2.906966	4.971069
	1300.00	2.959146	5.205857	1400.00	3.009799	5.427019
	1500.00	3.059711	5.636412	1600.00	3.109549	5.835416
	1700.00	3.159820	6.025448	1800.00	3.210853	6.207502
	1900.00	3.263097	6.382450	2000.00	3.316792	6.551258
	2100.00	3.372303	6.714401	2200.00	3.429765	6.872586
	2300.00	3.489552	7.026402	2400.00	3.551773	7.176220
	2500.00	3.616762	7.322428	2600.00	3.685124	7.465623
	2700.00	3.758311	7.606159	2800.00	3.838470	7.744173
	2896.00	3.923377	7.874997	2896.00	5.417720	7.874997
	2900.00	5.416494	7.882474	3000.00	5.386909	8.065597
	3100.00	5.359233	8.241777	3200.00	5.333286	8.411511
	3300.00	5.308913	8.575248	3400.00	5.285973	8.733391
	3500.00	5.264343	8.886303	3600.00	5.243916	9.034315
	3700.00	5.224592	9.177727	3800.00	5.206286	9.316813
	3900.00	5.188918	9.451822	4000.00	5.172419	9.582985
	4100.00	5.156725	9.710511	4200.00	5.141778	9.834594
	4300.00	5.127526	9.955414	4400.00	5.113922	10.073137
	4500.00	5.100923	10.187915	4600.00	5.088488	10.299890
	4700.00	5.076583	10.409196	4800.00	5.065174	10.515955
	4900.00	5.054231	10.620282	5000.00	5.043725	10.722284
	5100.00	5.033632	10.822063	5200.00	5.023926	10.919712
	5300.00	5.014587	11.015320	5400.00	5.005594	11.108969
	5500.00	4.996928	11.200737	5600.00	4.988571	11.290699
	5700.00	4.980507	11.378923	5800.00	4.972722	11.465475
	5900.00	4.965200	11.550416	6000.00	4.957929	11.633805

TABLE IV. - Continued.

EFDA	N 2G	TPIS78	H0/R	-1042.7679MP		0.0000NT	104.0000
	100.00	3.490326	15.730454	150.00	3.493533	17.146469	
	200.00	3.495738	18.151431	250.00	3.496580	18.931884	
	298.15	3.497461	19.547763	300.00	3.497542	19.569331	
	350.00	3.498573	20.108567	400.00	3.500248	20.575957	
	500.00	3.507405	21.357552	600.00	3.520795	21.998086	
	700.00	3.540669	22.542173	800.00	3.565497	23.016599	
	900.00	3.593761	23.438277	1000.00	3.624070	23.818460	
	1100.00	3.655209	24.165218	1200.00	3.686171	24.484733	
	1300.00	3.716624	24.780941	1400.00	3.746164	25.057376	
	1500.00	3.774491	25.316863	1600.00	3.801608	25.561323	
	1700.00	3.827374	25.792581	1800.00	3.851880	26.012108	
	1900.00	3.875137	26.220979	2000.00	3.897210	26.420208	
	2100.00	3.918097	26.610881	2200.00	3.937851	26.793667	
	2300.00	3.956619	26.969140	2400.00	3.974475	27.137828	
	2500.00	3.991384	27.300487	2600.00	4.007454	27.457369	
	2700.00	4.022779	27.608863	2800.00	4.037354	27.755454	
	2900.00	4.051255	27.897307	3000.00	4.064510	28.034875	
	3100.00	4.077181	28.168455	3200.00	4.089286	28.298032	
	3300.00	4.100912	28.423998	3400.00	4.112032	28.546623	
	3500.00	4.122688	28.665982	3600.00	4.132952	28.782245	
	3700.00	4.142791	28.895686	3800.00	4.152271	29.006238	
	3900.00	4.161388	29.114267	4000.00	4.170200	29.219715	
	4100.00	4.178699	29.322830	4200.00	4.186908	29.423588	
	4300.00	4.194819	29.522239	4400.00	4.202507	29.618708	
	4500.00	4.209933	29.713273	4600.00	4.217142	29.805891	
	4700.00	4.224145	29.896669	4800.00	4.230958	29.985594	
	4900.00	4.237566	30.072920	5000.00	4.244005	30.158609	
	5100.00	4.250287	30.242773	5200.00	4.256442	30.325259	
	5300.00	4.262434	30.406465	5400.00	4.268292	30.486121	
	5500.00	4.274047	30.564557	5600.00	4.279683	30.641670	
	5700.00	4.285247	30.717410	5800.00	4.290702	30.791937	
	5900.00	4.296095	30.865323	6000.00	4.301408	30.937586	
	6200.00	4.311908	31.078751	6400.00	4.322259	31.215854	
	6600.00	4.332547	31.349051	6800.00	4.342868	31.478489	
	7000.00	4.353285	31.604581	7200.00	4.363893	31.727356	
	7400.00	4.374756	31.846990	7600.00	4.385949	31.963887	
	7800.00	4.397571	32.077951	8000.00	4.409694	32.189469	
	8200.00	4.422369	32.298510	8400.00	4.435687	32.405225	
	8600.00	4.449714	32.509787	8800.00	4.464511	32.612256	
	9000.00	4.480147	32.712684	9200.00	4.496646	32.811406	
	9400.00	4.514080	32.908231	9600.00	4.532480	33.003490	
	9800.00	4.551883	33.097143	10000.00	4.572315	33.189287	
	10500.00	4.627995	33.413723	11000.00	4.690280	33.630472	
	11500.00	4.758925	33.840380	12000.00	4.833386	34.044471	
	12500.00	4.912839	34.243450	13000.00	4.996219	34.437660	
	13500.00	5.082332	34.627815	14000.00	5.169845	34.814284	
	14500.00	5.257453	34.997170	15000.00	5.343847	35.176821	
	15500.00	5.427840	35.353459	16000.00	5.508373	35.527063	
	16500.00	5.584565	35.697792	17000.00	5.655709	35.865511	
	17500.00	5.721275	36.030387	18000.00	5.780927	36.192399	
	18500.00	5.834462	36.351507	19000.00	5.881843	36.507749	
	19500.00	5.923118	36.661075	20000.00	5.958462	36.811433	
EFDA	NA1S	CODA89	H0/R	-776.9550MP		371.0100NT	26.0000
	100.00	1.620059	1.225087	200.00	2.286364	2.589329	
	298.15	2.605920	3.564017	300.00	2.610697	3.580287	
	371.01	2.792432	4.153495	371.01	3.634635	4.153495	
	400.00	3.647238	4.427441	500.00	3.665640	5.243725	
	600.00	3.661671	5.911834	700.00	3.647496	6.475410	
	800.00	3.629799	6.961204	900.00	3.612159	7.387767	
	1000.00	3.597085	7.767505	1100.00	3.585845	8.109853	
	1200.00	3.579786	8.421523	1300.00	3.579377	8.707937	
	1400.00	3.585213	8.973435	1500.00	3.597646	9.221149	
	1600.00	3.617020	9.453864	1700.00	3.643453	9.673988	
	1800.00	3.677306	9.883084	1900.00	3.718547	10.083108	
	2000.00	3.767390	10.274929	2100.00	3.823895	10.460170	
	2200.00	3.888110	10.639505	2300.00	3.960075	10.813856	

TABLE IV. - Continued.

EFDA	NB1S	J12/73	H0/R	-630.3438MP		0.0000NT	68.0000
	100.00		0.939322	0.571050	150.00	1.414395	1.047446
	200.00		1.731912	1.500750	250.00	1.955136	1.912680
	298.15		2.114184	2.271403	300.00	2.119588	2.284280
	350.00		2.244613	2.620977	400.00	2.343493	2.927533
	450.00		2.424410	3.208153	500.00	2.491788	3.467432
	550.00		2.549759	3.707615	600.00	2.600273	3.931561
	700.00		2.685151	4.339075	800.00	2.754973	4.702352
	900.00		2.814892	5.030429	1000.00	2.867758	5.329719
	1100.00		2.915385	5.605381	1200.00	2.959184	5.860818
	1300.00		2.999668	6.099365	1400.00	3.037805	6.323060
	1500.00		3.074384	6.533879	1600.00	3.110225	6.733530
	1700.00		3.145953	6.923071	1800.00	3.181987	7.104007
	1900.00		3.218786	7.276961	2000.00	3.256476	7.443012
	2100.00		3.295272	7.602785	2200.00	3.335297	7.757118
	2300.00		3.376862	7.906184	2400.00	3.420276	8.050875
	2500.00		3.466037	8.191415	2600.00	3.514986	8.328286
	2700.00		3.568460	8.461954	2750.00	3.597299	8.527649
	2750.00		4.773906	8.527649	2800.00	4.760546	8.613547
	2900.00		4.735207	8.780153	3000.00	4.711558	8.940281
	3100.00		4.689435	9.094408	3200.00	4.668694	9.242960
	3300.00		4.649210	9.386322	3400.00	4.630873	9.524840
	3500.00		4.613583	9.658826	3600.00	4.597254	9.788563
	3700.00		4.581807	9.914311	3800.00	4.567174	10.036304
	3900.00		4.553291	10.154757	4000.00	4.540102	10.269869
	4100.00		4.527556	10.381820	4200.00	4.515608	10.490779
	4300.00		4.504216	10.596899	4400.00	4.493341	10.700323
	4500.00		4.482950	10.801184	4600.00	4.473010	10.899605
	4700.00		4.463494	10.995699	4800.00	4.454374	11.089575
	4900.00		4.445626	11.181330	5000.00	4.437228	11.271059
	5100.00		4.429160	11.358847	5200.00	4.421401	11.444778
	5300.00		4.413936	11.528926	5400.00	4.406747	11.611365
	5500.00		4.399820	11.692161	5600.00	4.393139	11.771379
	5700.00		4.386694	11.849078	5800.00	4.380470	11.925316
	5900.00		4.374458	12.000146	6000.00	4.368646	12.073619

TABLE IV. - Continued.

EFDA	NE1G	L10/90	H0/R	-745.3750MP		0.0000NT	101.0000
	100.00	2.500000	12.368248		200.00	2.500000	14.101116
	298.15	2.500000	15.099315		300.00	2.500000	15.114779
	400.00	2.500000	15.833984		500.00	2.500000	16.391843
	600.00	2.500000	16.847647		700.00	2.500000	17.233024
	800.00	2.500000	17.566852		900.00	2.500000	17.861310
	1000.00	2.500000	18.124711		1100.00	2.500000	18.362986
	1200.00	2.500000	18.580515		1300.00	2.500000	18.780622
	1400.00	2.500000	18.965892		1500.00	2.500000	19.138374
	1600.00	2.500000	19.299720		1700.00	2.500000	19.451282
	1800.00	2.500000	19.594178		1900.00	2.500000	19.729346
	2000.00	2.500000	19.857579		2100.00	2.500000	19.979554
	2200.00	2.500000	20.095854		2300.00	2.500000	20.206984
	2400.00	2.500000	20.313383		2500.00	2.500000	20.415438
	2600.00	2.500000	20.513490		2700.00	2.500000	20.607840
	2800.00	2.500000	20.698759		2900.00	2.500000	20.786488
	3000.00	2.500000	20.871242		3100.00	2.500000	20.953216
	3200.00	2.500000	21.032588		3300.00	2.500000	21.109517
	3400.00	2.500000	21.184149		3500.00	2.500000	21.256618
	3600.00	2.500000	21.327046		3700.00	2.500000	21.395543
	3800.00	2.500000	21.462214		3900.00	2.500000	21.527152
	4000.00	2.500000	21.590447		4100.00	2.500000	21.652178
	4200.00	2.500000	21.712422		4300.00	2.500000	21.771248
	4400.00	2.500000	21.828722		4500.00	2.500000	21.884904
	4600.00	2.500000	21.939852		4700.00	2.500000	21.993617
	4800.00	2.500000	22.046251		4900.00	2.500000	22.097799
	5000.00	2.500000	22.148306		5100.00	2.500000	22.197812
	5200.00	2.500000	22.246357		5300.00	2.500000	22.293978
	5400.00	2.500000	22.340708		5500.00	2.500000	22.386581
	5600.00	2.500000	22.431627		5700.00	2.500000	22.475876
	5800.00	2.500000	22.519356		5900.00	2.500000	22.562092
	6000.00	2.500000	22.604110		6200.00	2.500000	22.686084
	6400.00	2.500000	22.765456		6600.00	2.500000	22.842385
	6800.00	2.500000	22.917017		7000.00	2.500000	22.989486
	7200.00	2.500000	23.059913		7400.00	2.500000	23.128411
	7600.00	2.500000	23.195082		7800.00	2.500000	23.260020
	8000.00	2.500000	23.323315		8200.00	2.500000	23.385046
	8400.00	2.500000	23.445290		8600.00	2.500000	23.504116
	8800.00	2.500000	23.561590		9000.00	2.500000	23.617772
	9200.00	2.500000	23.672720		9400.00	2.500000	23.726485
	9600.00	2.500001	23.779119		9800.00	2.500001	23.830667
	10000.00	2.500001	23.881174		10500.00	2.500004	24.003149
	11000.00	2.500008	24.119450		11500.00	2.500018	24.230580
	12000.00	2.500037	24.336980		12500.00	2.500070	24.439037
	13000.00	2.500129	24.537092		13500.00	2.500225	24.631450
	14000.00	2.500379	24.722380		14500.00	2.500615	24.810125
	15000.00	2.500943	24.894904		15500.00	2.501435	24.976916
	16000.00	2.502007	25.056335		16500.00	2.502876	25.133337
	17000.00	2.503778	25.208051		17500.00	2.505229	25.280649
	18000.00	2.505840	25.351151		18500.00	2.507748	25.419834
	19000.00	2.510124	25.486741		19500.00	2.513042	25.551979
	20000.00	2.516583	25.615647				

TABLE IV. - Continued.

EFDA	NI1S	J12/76	HO/R	-575.6202MP	0.0000NT	70.0000
	100.00	0.610980	0.285525	150.00	1.079238	0.625012
	200.00	1.441456	0.988032	250.00	1.717961	1.340789
	298.15	1.930640	1.661875	300.00	1.937978	1.673901
	350.00	2.119187	1.986768	400.00	2.273736	2.280110
	450.00	2.409175	2.555760	500.00	2.532681	2.816161
	550.00	2.651006	3.063101	600.00	2.767852	3.298651
	631.00	2.845731	3.440028	631.00	2.845731	3.440028
	700.00	2.943220	3.740878	800.00	3.039415	4.140442
	900.00	3.119847	4.503212	1000.00	3.191529	4.835643
	1100.00	3.257504	5.142871	1200.00	3.319699	5.429103
	1300.00	3.379819	5.697204	1400.00	3.438653	5.949874
	1500.00	3.496939	6.189020	1600.00	3.554930	6.416554
	1700.00	3.613244	6.633782	1728.00	3.629498	6.693011
	1728.00	4.823514	6.693011	1800.00	4.817769	6.889798
	1900.00	4.810512	7.150084	2000.00	4.803981	7.396662
	2100.00	4.798072	7.630904	2200.00	4.792700	7.853984
	2300.00	4.787796	8.066918	2400.00	4.783300	8.270589
	2500.00	4.779163	8.465767	2600.00	4.775345	8.653134
	2700.00	4.771810	8.833290	2800.00	4.768527	9.006770
	2900.00	4.765470	9.174050	3000.00	4.762618	9.335558
	3100.00	4.759949	9.491679	3200.00	4.757447	9.642761
	3300.00	4.755097	9.789120	3400.00	4.752885	9.931040
	3500.00	4.750800	10.068784	3600.00	4.748830	10.202591
	3700.00	4.746967	10.332678	3800.00	4.745202	10.459248
	3900.00	4.743527	10.582485	4000.00	4.741936	10.702560
	4100.00	4.740423	10.819632	4200.00	4.738982	10.933847
	4300.00	4.737607	11.045342	4400.00	4.736296	11.154242
	4500.00	4.735042	11.260666	4600.00	4.733843	11.364724
	4700.00	4.732695	11.466518	4800.00	4.731595	11.566146
	4900.00	4.730540	11.663697	5000.00	4.729527	11.759257
	5100.00	4.728554	11.852904	5200.00	4.727618	11.944715
	5300.00	4.726717	12.034759	5400.00	4.725850	12.123103
	5500.00	4.725015	12.209810	5600.00	4.724209	12.294941
	5700.00	4.723431	12.378550	5800.00	4.722681	12.460693
	5900.00	4.721955	12.541418	6000.00	4.721254	12.620774

TABLE IV. - Continued.

EFDA 0 2G TPIS89 H0/R -1043.9706MP 0.0000NT 104.0000

100.00	3.489123	17.354809	150.00	3.493373	18.770264
200.00	3.495137	19.775907	250.00	3.497638	20.556023
298.15	3.501495	21.172174	300.00	3.501952	21.193606
350.00	3.508882	21.734160	400.00	3.519793	22.203259
500.00	3.551665	22.992010	600.00	3.593159	23.643049
700.00	3.639121	24.200377	800.00	3.686070	24.689365
900.00	3.731674	25.126177	1000.00	3.775012	25.521715
1100.00	3.815719	25.883321	1200.00	3.853551	26.217014
1300.00	3.888800	26.526828	1400.00	3.921591	26.816249
1500.00	3.952255	27.087951	1600.00	3.981115	27.343898
1700.00	4.008278	27.586146	1800.00	4.034094	27.815911
1900.00	4.058711	28.034727	2000.00	4.082250	28.243435
2100.00	4.104921	28.443149	2200.00	4.126789	28.634645
2300.00	4.147958	28.818542	2400.00	4.168466	28.995523
2500.00	4.188487	29.166134	2600.00	4.207940	29.330820
2700.00	4.226976	29.489908	2800.00	4.245555	29.644041
2900.00	4.263723	29.793293	3000.00	4.281482	29.938144
3100.00	4.298872	30.078914	3200.00	4.315926	30.215569
3300.00	4.332639	30.348596	3400.00	4.349005	30.478241
3500.00	4.365021	30.604508	3600.00	4.380748	30.727696
3700.00	4.396145	30.847967	3800.00	4.411238	30.965415
3900.00	4.426051	31.080137	4000.00	4.440574	31.192382
4100.00	4.454828	31.302249	4200.00	4.468805	31.409748
4300.00	4.482523	31.515100	4400.00	4.495973	31.618315
4500.00	4.509199	31.719469	4600.00	4.522191	31.818692
4700.00	4.534936	31.916117	4800.00	4.547451	32.011727
4900.00	4.559775	32.105605	5000.00	4.571846	32.197811
5100.00	4.583750	32.288500	5200.00	4.595428	32.377611
5300.00	4.606892	32.465252	5400.00	4.618198	32.551487
5500.00	4.629290	32.636372	5600.00	4.640180	32.719897
5700.00	4.650898	32.802030	5800.00	4.661413	32.883043
5900.00	4.671734	32.962807	6000.00	4.681872	33.041430
6200.00	4.701593	33.195264	6400.00	4.720513	33.344846
6600.00	4.738615	33.490436	6800.00	4.755917	33.632134
7000.00	4.772369	33.770234	7200.00	4.787922	33.904901
7400.00	4.802587	34.036248	7600.00	4.816305	34.164452
7800.00	4.829089	34.289742	8000.00	4.840888	34.412168
8200.00	4.851715	34.531837	8400.00	4.861554	34.648886
8600.00	4.870390	34.763330	8800.00	4.878223	34.875410
9000.00	4.885080	34.985097	9200.00	4.890959	35.092636
9400.00	4.895871	35.197774	9600.00	4.899827	35.300981
9800.00	4.902860	35.401984	10000.00	4.904978	35.501136
10500.00	4.906548	35.740474	11000.00	4.903109	35.968583
11500.00	4.895189	36.186379	12000.00	4.883299	36.394555
12500.00	4.867992	36.593639	13000.00	4.849736	36.784126
13500.00	4.829019	36.966851	14000.00	4.806234	37.142022
14500.00	4.781777	37.310205	15000.00	4.755976	37.471915
15500.00	4.729123	37.627460	16000.00	4.701484	37.777177
16500.00	4.673267	37.921458	17000.00	4.644665	38.060470
17500.00	4.615849	38.194766	18000.00	4.586949	38.324334
18500.00	4.558078	38.449664	19000.00	4.529334	38.570778
19500.00	4.500793	38.688081	20000.00	4.472524	38.801623

TABLE IV. - Continued.

EFDA	P 1S	TPIS89	HO/R	-644.6561MP	317.3000NT	75.0000
	100.00	1.068012	1.061037	150.00	1.333412	1.545531
	195.40	1.559100	1.927095	195.40	1.879783	1.927055
	200.00	1.894880	1.970772	210.00	1.926638	2.063616
	220.00	1.956601	2.154284	230.00	1.986051	2.241618
	240.00	2.014049	2.326916	250.00	2.041251	2.409763
	260.00	2.067748	2.490428	270.00	2.093618	2.568834
	280.00	2.118500	2.645582	290.00	2.142909	2.720396
	298.15	2.162187	2.779776	300.00	2.166494	2.793149
	317.30	2.206055	2.915678	317.30	2.455847	2.915678
	400.00	2.597605	3.501544	500.00	2.706383	4.093770
	600.00	2.778902	4.594014	700.00	2.830701	5.026478
	800.00	2.869550	5.407117	900.00	2.899767	5.746916
	1000.00	2.923939	6.053733	1100.00	2.943717	6.333371
	1200.00	2.960199	6.590236	1300.00	2.974145	6.827744
	1400.00	2.986098	7.048600	1500.00	2.996458	7.254981
	1600.00	3.005523	7.448663	1700.00	3.013522	7.631117
	1800.00	3.020631	7.803570	1900.00	3.026993	7.967061
	2000.00	3.032718	8.122474	2100.00	3.037898	8.270568
	2200.00	3.042607	8.412001	2300.00	3.046906	8.547347
	2400.00	3.050847	8.677106	2500.00	3.054473	8.801722
	2600.00	3.057820	8.921587	2700.00	3.060920	9.037049
	2800.00	3.063797	9.148420	2900.00	3.066477	9.255980
	3000.00	3.068977	9.359981	3100.00	3.071316	9.460651
	3200.00	3.073510	9.558196	3300.00	3.075570	9.652805
	3400.00	3.077509	9.744649	3500.00	3.079337	9.833885
	3600.00	3.081064	9.920657	3700.00	3.082697	10.005098
	3800.00	3.084244	10.087328	3900.00	3.085712	10.167462
	4000.00	3.087107	10.245603	4100.00	3.088433	10.321849
	4200.00	3.089697	10.396288	4300.00	3.090901	10.469004
	4400.00	3.092051	10.540076	4500.00	3.093150	10.609575
	4600.00	3.094201	10.677571	4700.00	3.095207	10.744126
	4800.00	3.096172	10.809301	4900.00	3.097097	10.873151
	5000.00	3.097985	10.935730	5100.00	3.098838	10.997087
	5200.00	3.099658	11.057268	5300.00	3.100448	11.116319
	5400.00	3.101208	11.174280	5500.00	3.101940	11.231191
	5600.00	3.102647	11.287090	5700.00	3.103328	11.342011
	5800.00	3.103986	11.395990	5900.00	3.104622	11.449056
	6000.00	3.105237	11.501241			

TABLE IV. - Continued.

EFDA	PB1S	TPIS91	H0/R	-826.2664MP		600.6500NT	42.0000
	100.00	2.123998	2.313907	200.00	2.579226	3.957058	
	298.15	2.771311	5.022293	300.00	2.773995	5.039444	
	350.00	2.841075	5.472222	400.00	2.899734	5.855503	
	450.00	2.952299	6.200129	500.00	3.000340	6.513705	
	550.00	3.044940	6.801783	600.00	3.086869	7.068543	
	600.65	3.087399	7.071885	600.65	4.050934	7.071885	
	700.00	3.996166	7.687729	800.00	3.949855	8.218241	
	900.00	3.909447	8.681085	1000.00	3.873443	9.091089	
	1100.00	3.841007	9.458720	1200.00	3.811638	9.791651	
	1300.00	3.785008	10.095676	1400.00	3.760891	10.375278	
	1500.00	3.739113	10.633997	1600.00	3.719538	10.874677	
	1700.00	3.702049	11.099638	1800.00	3.686542	11.310793	
	1900.00	3.672925	11.509741	2000.00	3.661107	11.697829	
	2100.00	3.651005	11.876204	2200.00	3.642534	12.045847	
	2300.00	3.635615	12.207606	2400.00	3.630167	12.362216	
	2500.00	3.626113	12.510320	2600.00	3.623372	12.652481	
	2700.00	3.621868	12.789197	2800.00	3.621523	12.920906	
	2900.00	3.622258	13.048000	3000.00	3.623996	13.170826	
	3100.00	3.626659	13.289698	3200.00	3.630170	13.404893	
	3300.00	3.634452	13.516663	3400.00	3.639426	13.625234	
	3500.00	3.645015	13.730811	3600.00	3.651141	13.833579	
EFDA	RB1S	CODA89	H0/R	-900.7145MP		312.4700NT	25.0000
	100.00	2.416258	3.231459	200.00	2.802330	5.045637	
	250.00	2.913461	5.687527	298.15	3.021011	6.213447	
	300.00	3.025634	6.232037	312.47	3.057311	6.356112	
	312.47	3.901025	6.356112	400.00	3.869140	7.316005	
	500.00	3.831855	8.174986	600.00	3.803391	8.871198	
	700.00	3.783747	9.455759	800.00	3.770968	9.960088	
	900.00	3.764102	10.403900	1000.00	3.763301	10.800396	
	1100.00	3.768877	11.159243	1200.00	3.781442	11.487648	
	1300.00	3.802343	11.791120	1400.00	3.832800	12.073970	
	1500.00	3.874351	12.339713	1600.00	3.928449	12.591346	
	1700.00	3.996769	12.831523	1800.00	4.081018	13.062385	
	1900.00	4.183049	13.285569	2000.00	4.304583	13.503201	
	2100.00	4.447417	13.716491				

TABLE IV. - Continued.

EFDA	S 1S	TPIS89	H0/R	-530.6386MP	388.3600NT	71.0000
	100.00	0.829875	0.678452	200.00	1.402368	1.443140
	298.15	1.779771	2.077342	300.00	1.786034	2.087916
	368.30	1.979437	2.474199	368.30	2.110387	2.474199
	388.36	2.156844	2.587128	388.36	2.689823	2.587128
	400.00	2.724038	2.667065	428.15	2.810107	2.855108
	432.25	2.831352	2.881791	453.15	2.951660	3.018379
	500.00	3.126089	3.317841	550.00	3.242931	3.621664
	600.00	3.322816	3.907455	650.00	3.381097	4.175842
	700.00	3.423112	4.428041	717.00	3.433849	4.510313
	800.00	3.476904	4.888795	900.00	3.518214	5.300796
	1000.00	3.551262	5.673248	1100.00	3.578301	6.013028
	1200.00	3.600834	6.325376	1300.00	3.619900	6.614370
	1400.00	3.636242	6.883246	1500.00	3.650406	7.134615
	1600.00	3.662799	7.370611	1700.00	3.673734	7.593002
	1800.00	3.683454	7.803267	1900.00	3.692150	8.002658
	2000.00	3.699978	8.192243	2100.00	3.707059	8.372940
	2200.00	3.713497	8.545543	2300.00	3.719375	8.710746
	2400.00	3.724764	8.869157	2500.00	3.729721	9.021311
	2600.00	3.734297	9.167684	2700.00	3.738534	9.308698
	2800.00	3.742468	9.444731	2900.00	3.746131	9.576124
	3000.00	3.749550	9.703182	3100.00	3.752748	9.826182
	3200.00	3.755746	9.945375	3300.00	3.758563	10.060989
	3400.00	3.761214	10.173233	3500.00	3.763713	10.282297
	3600.00	3.766074	10.388358	3700.00	3.768306	10.491575
	3800.00	3.770422	10.592098	3900.00	3.772429	10.690062
	4000.00	3.774335	10.785596	4100.00	3.776149	10.878817
	4200.00	3.777876	10.969834	4300.00	3.779523	11.058749
	4400.00	3.781095	11.145656	4500.00	3.782597	11.230645
	4600.00	3.784034	11.313798	4700.00	3.785410	11.395193
	4800.00	3.786728	11.474903	4900.00	3.787993	11.552996
	5000.00	3.789207	11.629536	5100.00	3.790373	11.704584
	5200.00	3.791495	11.778196	5300.00	3.792574	11.850428
	5400.00	3.793613	11.921329	5500.00	3.794615	11.990948
	5600.00	3.795581	12.059330	5700.00	3.796512	12.126518
	5800.00	3.797412	12.192554	5900.00	3.798281	12.257476
	6000.00	3.799121	12.321321			
EFDA	SI1S	TPIS91	H0/R	-386.9706MP	1690.0000NT	64.0000
	100.00	0.321125	0.139275	200.00	0.867760	0.534247
	250.00	1.108905	0.751818	298.15	1.297906	0.964404
	300.00	1.304604	0.972454	400.00	1.616762	1.392804
	500.00	1.846894	1.779554	600.00	2.021476	2.132395
	700.00	2.158976	2.454722	800.00	2.270963	2.750560
	900.00	2.364789	3.023609	1000.00	2.445277	3.277031
	1100.00	2.515707	3.513463	1200.00	2.578371	3.735095
	1300.00	2.634921	3.943744	1400.00	2.686574	4.140930
	1500.00	2.734246	4.327931	1600.00	2.778638	4.505828
	1690.00	2.816240	4.658918	1690.00	6.389519	4.658918
	1700.00	6.371177	4.696560	1800.00	6.198967	5.055758
	1900.00	6.044884	5.386716	2000.00	5.906209	5.693191
	2100.00	5.780741	5.978270	2200.00	5.666680	6.244516
	2300.00	5.562537	6.494078	2400.00	5.467072	6.728772
	2500.00	5.379245	6.950144	2600.00	5.298174	7.159522
	2700.00	5.223107	7.358051	2800.00	5.153403	7.546728
	2900.00	5.088506	7.726422	3000.00	5.027936	7.897898
	3100.00	4.971273	8.061829	3200.00	4.918152	8.218813
	3300.00	4.868250	8.369381	3400.00	4.821283	8.514008
	3500.00	4.777000	8.653120	3600.00	4.735178	8.787101
	3700.00	4.695616	8.916295	3800.00	4.658136	9.041017
	3900.00	4.622579	9.161551	4000.00	4.588799	9.278155
	4100.00	4.556667	9.391066	4200.00	4.526065	9.500500
	4300.00	4.496887	9.606656	4400.00	4.469035	9.709716
	4500.00	4.442420	9.809848	4600.00	4.416963	9.907206
	4700.00	4.392589	10.001936	4800.00	4.369231	10.094168
	4900.00	4.346826	10.184026	5000.00	4.325317	10.271626
	5100.00	4.304652	10.357073	5200.00	4.284781	10.440468
	5300.00	4.265661	10.521903	5400.00	4.247248	10.601464
	5500.00	4.229506	10.679234	5600.00	4.212396	10.755289
	5700.00	4.195887	10.829700	5800.00	4.179948	10.902535
	5900.00	4.164549	10.973857	6000.00	4.149663	11.043726

TABLE IV. - Continued.

EFDA	SN1S	TPIS91	H0/R	-760.4778MP	505.1180NT	52.0000
	100.00	1.585181	1.303745	200.00	2.249080	2.642369
	298.15	2.550655	3.604849	300.00	2.555372	3.620338
	350.00	2.664533	4.022452	400.00	2.759032	4.384865
	450.00	2.845360	4.714676	500.00	2.926931	5.018817
	505.12	2.935187	5.048560	505.12	4.648420	5.048560
	600.00	4.464875	5.832700	700.00	4.315558	6.509258
	800.00	4.199065	7.077606	900.00	4.106581	7.566643
	1000.00	4.032038	7.995320	1100.00	3.971184	8.376665
	1200.00	3.920980	8.719983	1300.00	3.879202	9.032129
	1400.00	3.844192	9.318290	1500.00	3.814692	9.582477
	1600.00	3.789727	9.827852	1700.00	3.768535	10.056950
	1800.00	3.750511	10.271829	1900.00	3.735167	10.474187
	2000.00	3.722107	10.665435	2100.00	3.711005	10.846761
	2200.00	3.701592	11.019174	2300.00	3.693643	11.183536
	2400.00	3.686967	11.340590	2500.00	3.681405	11.490983
	2600.00	3.676819	11.635278	2700.00	3.673091	11.773970
	2800.00	3.670120	11.907496	2900.00	3.667817	12.036243
	3000.00	3.666106	12.160558	3100.00	3.664918	12.280748
	3200.00	3.664196	12.397092	3300.00	3.663886	12.509839
	3400.00	3.663942	12.619217	3500.00	3.664324	12.725431
	3600.00	3.664993	12.828667	3700.00	3.665917	12.929096
	3800.00	3.667067	13.026874	3900.00	3.668416	13.122145
	4000.00	3.669940	13.215040	4100.00	3.671617	13.305681
	4200.00	3.673428	13.394179	4300.00	3.675353	13.480639
	4400.00	3.677378	13.565157	4500.00	3.679487	13.647822
	4600.00	3.681666	13.728716	4700.00	3.683904	13.807919
	5900.00	4.658883	15.631127	6000.00	4.660340	15.709441
EFDA	SR1S	SRD 92	H0/R	-788.7764MP	1041.0000NT	75.0000
	100.00	1.790767	1.498681	120.00	1.972083	1.841990
	140.00	2.111676	2.156898	160.00	2.223392	2.446424
	180.00	2.315215	2.713770	200.00	2.392197	2.961800
	220.00	2.457789	3.192956	240.00	2.514509	3.409300
	260.00	2.564304	3.612575	280.00	2.608748	3.804266
	298.15	2.645569	3.969273	300.00	2.649151	3.985653
	350.00	2.736562	4.400803	400.00	2.809660	4.771125
	450.00	2.872478	5.105768	500.00	2.927651	5.411328
	600.00	3.021667	5.953693	700.00	3.100586	6.425568
	800.00	3.169154	6.844167	820.00	3.181890	6.922579
	820.00	3.306562	6.922579	900.00	3.333208	7.231620
	1000.00	3.364875	7.584461	1041.00	3.377443	7.719919
	1041.00	4.301721	7.719919	1100.00	4.309677	7.957288
	1200.00	4.321375	8.332795	1300.00	4.331273	8.679091
	1400.00	4.339757	9.000391	1500.00	4.347110	9.300060
	1600.00	4.353544	9.580826	1700.00	4.359221	9.844931
	1800.00	4.364267	10.094243	1900.00	4.368782	10.330330
	2000.00	4.372845	10.554524	2100.00	4.376522	10.767967
	2200.00	4.379864	10.971641	2300.00	4.382916	11.166402
	2400.00	4.385713	11.352997	2500.00	4.388287	11.532083
	2600.00	4.390662	11.704242	2700.00	4.392862	11.869989
	2800.00	4.394904	12.029784	2900.00	4.396806	12.184041
	3000.00	4.398581	12.333130	3100.00	4.400241	12.477386
	3200.00	4.401798	12.617113	3300.00	4.403260	12.752586
	3400.00	4.404636	12.884057	3500.00	4.405934	13.011755
	3600.00	4.407159	13.135892	3700.00	4.408319	13.256659
	3800.00	4.409417	13.374236	3900.00	4.410459	13.488786
	4000.00	4.411449	13.600462	4100.00	4.412390	13.709404
	4200.00	4.413287	13.815743	4300.00	4.414142	13.919600
	4400.00	4.414958	14.021088	4500.00	4.415738	14.120313
	4600.00	4.416484	14.217375	4700.00	4.417198	14.312364
	4800.00	4.417882	14.405369	4900.00	4.418539	14.496469
	5000.00	4.419169	14.585742	5100.00	4.419775	14.673259
	5200.00	4.420357	14.759088	5300.00	4.420917	14.843293
	5400.00	4.421457	14.925935	5500.00	4.421977	15.007070
	5600.00	4.422478	15.086751	5700.00	4.422962	15.165032
	5800.00	4.423429	15.241959	5900.00	4.423880	15.317579
	6000.00	4.424316	15.391935			

TABLE IV. - Continued.

EFDA	TA1S	J12/72	H0/R	-683.2634MP		0.0000NT	68.0000
	100.00	1.196703	0.744842		150.00	1.661353	1.325354
	200.00	1.952611	1.846290		250.00	2.151420	2.304525
	298.15	2.291677	2.696110		300.00	2.296387	2.710282
	350.00	2.405777	3.072838		400.00	2.491728	3.399900
	450.00	2.561787	3.697632		500.00	2.620960	3.970649
	550.00	2.672218	4.222957		600.00	2.717338	4.457469
	700.00	2.793739	4.882239		800.00	2.855550	5.259540
	900.00	2.906565	5.598807		1000.00	2.950144	5.907504
	1100.00	2.989298	6.190438		1200.00	3.025634	6.452014
	1300.00	3.059619	6.695616		1400.00	3.091154	6.923507
	1500.00	3.119687	7.137803		1600.00	3.145480	7.340045
	1700.00	3.169512	7.531419		1800.00	3.193146	7.713330
	1900.00	3.217520	7.886562		2000.00	3.242584	8.052248
	2100.00	3.268354	8.210976		2200.00	3.294624	8.363670
	2300.00	3.321485	8.510721		2400.00	3.349165	8.652625
	2500.00	3.377854	8.789911		2600.00	3.407805	8.923048
	2700.00	3.439369	9.052167		2800.00	3.472887	9.177888
	2900.00	3.508822	9.300351		3000.00	3.547573	9.419998
	3100.00	3.589566	9.537004		3200.00	3.635286	9.651606
	3258.00	3.663708	9.717223		3258.00	5.013645	9.717223
	3300.00	5.013881	9.781444		3400.00	5.014419	9.931132
	3500.00	5.014926	10.076495		3600.00	5.015405	10.217776
	3700.00	5.015858	10.355199		3800.00	5.016287	10.488969
	3900.00	5.016694	10.619275		4000.00	5.017081	10.746292
	4100.00	5.017449	10.870181		4200.00	5.017799	10.991094
	4300.00	5.018133	11.109169		4400.00	5.018452	11.224537
	4500.00	5.018757	11.337319		4600.00	5.019049	11.447629
	4700.00	5.019328	11.555573		4800.00	5.019595	11.661250
	4900.00	5.019852	11.764753		5000.00	5.020098	11.866170
	5100.00	5.020335	11.965584		5200.00	5.020562	12.063071
	5300.00	5.020781	12.158706		5400.00	5.020992	12.252557
	5500.00	5.021195	12.344690		5600.00	5.021391	12.435166
	5700.00	5.021580	12.524044		5800.00	5.021763	12.611380
	5900.00	5.021939	12.697225		6000.00	5.022110	12.781631
EFDA	TH1S	CODA89	H0/R	-763.7251MP		2023.0000NT	65.0000
	100.00	1.675384	1.309037		200.00	2.297189	2.699017
	298.15	2.561547	3.672134		300.00	2.565395	3.687770
	400.00	2.725657	4.449270		500.00	2.842260	5.070774
	600.00	2.937836	5.597484		700.00	3.021053	6.056813
	800.00	3.096995	6.465204		900.00	3.167822	6.834210
	1000.00	3.235308	7.171439		1100.00	3.300145	7.482932
	1200.00	3.363197	7.772757		1300.00	3.424875	8.044352
	1400.00	3.485301	8.300481		1500.00	3.544967	8.542817
	1600.00	3.603790	8.773608		1650.00	3.633006	8.884869
	1650.00	3.888128	8.884869		1700.00	3.900127	9.001174
	1800.00	3.928073	9.224837		1900.00	3.960673	9.438072
	2000.00	3.997169	9.642120		2023.00	4.006063	9.687889
	2023.00	4.826532	9.687889		2100.00	4.852418	9.868674
	2200.00	4.883330	10.095133		2300.00	4.911555	10.312838
	2400.00	4.937428	10.522426		2500.00	4.961230	10.724471
	2600.00	4.983202	10.919488		2700.00	5.003546	11.107942
	2800.00	5.022438	11.290254		2900.00	5.040026	11.466809
	3000.00	5.056441	11.637953		3100.00	5.071798	11.804006
	3200.00	5.086195	11.965259		3300.00	5.099719	12.121979
	3400.00	5.112448	12.274412		3500.00	5.124449	12.422784
	3600.00	5.135784	12.567304		3700.00	5.146506	12.708167
	3800.00	5.156664	12.845551		3900.00	5.166300	12.979624
	4000.00	5.175455	13.110540		4100.00	5.184164	13.238443
	4200.00	5.192457	13.363469		4300.00	5.200365	13.485744
	4400.00	5.207914	13.605385		4500.00	5.215127	13.722503
	4600.00	5.222026	13.837202		4700.00	5.228632	13.949579
	4800.00	5.234962	14.059726		4900.00	5.241034	14.167730
	5000.00	5.246864	14.273672		5100.00	5.252464	14.377630
	5200.00	5.257850	14.479675		5300.00	5.263032	14.579877
	5400.00	5.268022	14.678301		5500.00	5.272830	14.775009
	5600.00	5.277467	14.870059		5700.00	5.281941	14.963508
	5800.00	5.286261	15.055408		5900.00	5.290435	15.145809
	6000.00	5.294469	15.234760				

TABLE IV. - Continued.

EFDA	TI1S	CODA89	H0/R	-580.1905MP	1944.0000NT	65.0000
	100.00	0.672319	0.317397	200.00	1.489565	1.060676
	298.15	1.945969	1.748777	300.00	1.952410	1.760978
	400.00	2.240361	2.364962	500.00	2.438388	2.887362
	600.00	2.590852	3.345757	700.00	2.718312	3.754950
	800.00	2.829692	4.125378	900.00	2.926477	4.464458
	1000.00	3.012204	4.777070	1100.00	3.126735	5.069298
	1156.00	3.220388	5.226652	1156.00	3.615745	5.226652
	1200.00	3.607849	5.361531	1300.00	3.600934	5.650002
	1400.00	3.607205	5.916988	1500.00	3.624507	6.166449
	1600.00	3.651298	6.401129	1700.00	3.686327	6.623481
	1800.00	3.728689	6.835373	1900.00	3.777543	7.038247
	1944.00	3.800931	7.125028	1944.00	4.704199	7.125028
	2000.00	4.730085	7.258994	2100.00	4.772877	7.490828
	2200.00	4.811779	7.713775	2300.00	4.847298	7.928462
	2400.00	4.879857	8.135459	2500.00	4.909811	8.335280
	2600.00	4.937461	8.528392	2700.00	4.963063	8.715219
	2800.00	4.986836	8.896149	2900.00	5.008970	9.071535
	3000.00	5.029628	9.241699	3100.00	5.048953	9.406938
	3200.00	5.067071	9.567525	3300.00	5.084090	9.723710
	3400.00	5.100109	9.875725	3500.00	5.115212	10.023785
	3600.00	5.129476	10.168087	3700.00	5.142969	10.308815
	3800.00	5.155751	10.446140	3900.00	5.167879	10.580221
	4000.00	5.179400	10.711207	4100.00	5.190359	10.839236
	4200.00	5.200796	10.964437	4300.00	5.210747	11.086932
	4400.00	5.220246	11.206834	4500.00	5.229323	11.324250
	4600.00	5.238006	11.439281	4700.00	5.246319	11.552020
	4800.00	5.254285	11.662557	4900.00	5.261927	11.770976
	5000.00	5.269263	11.877356	5100.00	5.276311	11.981771
	5200.00	5.283088	12.084293	5300.00	5.289609	12.184988
	5400.00	5.295889	12.283921	5500.00	5.301940	12.381152
	5600.00	5.307775	12.476738	5700.00	5.313406	12.570733
	5800.00	5.318842	12.663190	5900.00	5.324094	12.754157
	6000.00	5.329171	12.843683			
EFDA	U 1S	CODA89	H0/R	-765.4089MP	1408.0000NT	47.0000
	100.00	1.562329	1.172649	200.00	2.247878	2.502853
	298.15	2.567194	3.470444	300.00	2.571809	3.486395
	400.00	2.791806	4.257677	500.00	2.974078	4.900710
	600.00	3.145104	5.458049	700.00	3.318124	5.955784
	800.00	3.500056	6.410570	900.00	3.695414	6.834010
	942.00	3.782084	7.004480	942.00	4.137026	7.004480
	1000.00	4.192851	7.253352	1049.00	4.235202	7.454948
	1049.00	4.777514	7.454948	1100.00	4.769581	7.681560
	1200.00	4.755983	8.095968	1300.00	4.744477	8.476183
	1400.00	4.734615	8.827417	1408.00	4.733886	8.854392
	1408.00	5.478750	8.854392	1500.00	5.495533	9.201665
	1600.00	5.512953	9.556967	1700.00	5.529950	9.891644
	1800.00	5.546662	10.208205	1900.00	5.563198	10.508585
	2000.00	5.579643	10.794262	2100.00	5.596069	11.066969
	2200.00	5.612532	11.327612	2300.00	5.629028	11.577518
	2400.00	5.645652	11.817433	2500.00	5.662342	12.048263
	2600.00	5.679089	12.270615	2700.00	5.695933	12.485295
	2800.00	5.712904	12.692750	2900.00	5.729950	12.893517
	3000.00	5.747102	13.088043	3100.00	5.764311	13.276859
	3200.00	5.781609	13.460054	3300.00	5.799026	13.638199
	3400.00	5.816479	13.811617	3500.00	5.834035	13.980482
	3600.00	5.851651	14.145078	3700.00	5.869355	14.305616
	3800.00	5.887108	14.462377	3900.00	5.904938	14.615574
	4000.00	5.922808	14.765242			

TABLE IV. - Continued.

EFDA	V 1S	J 6/73	H0/R	-558.0605MP		0.0000NT	68.0000
	100.00		0.588128	0.276023	150.00	1.041553	0.603283
	200.00		1.398158	0.954115	250.00	1.668890	1.296408
	298.15		1.871744	1.608437	300.00	1.878643	1.620059
	350.00		2.045306	1.922697	400.00	2.180225	2.204760
	450.00		2.291042	2.468229	500.00	2.384025	2.714532
	550.00		2.463382	2.945595	600.00	2.532320	3.162904
	700.00		2.647351	3.562275	800.00	2.742495	3.922119
	900.00		2.825582	4.250000	1000.00	2.900472	4.551681
	1100.00		2.969945	4.831357	1200.00	3.036459	5.092703
	1300.00		3.101344	5.338360	1400.00	3.165722	5.570571
	1500.00		3.229695	5.791161	1600.00	3.293414	6.001541
	1700.00		3.357490	6.203146	1800.00	3.422197	6.396903
	1900.00		3.488132	6.583659	2000.00	3.555531	6.764379
	2100.00		3.624874	6.939429	2190.00	3.689806	7.092922
	2190.00		4.944421	7.092922	2200.00	4.947206	7.115454
	2300.00		4.973720	7.335959	2400.00	4.998024	7.548160
	2500.00		5.020385	7.752649	2600.00	5.041025	7.949959
	2700.00		5.060136	8.140572	2800.00	5.077883	8.324922
	2900.00		5.094405	8.503403	3000.00	5.109826	8.676374
	3100.00		5.124252	8.844162	3200.00	5.137776	9.007067
	3300.00		5.150481	9.165361	3400.00	5.162439	9.319297
	3500.00		5.173713	9.469108	3600.00	5.184360	9.615007
	3700.00		5.194433	9.757191	3800.00	5.203975	9.895846
	3900.00		5.213027	10.031139	4000.00	5.221628	10.163231
	4100.00		5.229808	10.292268	4200.00	5.237599	10.418388
	4300.00		5.245028	10.541719	4400.00	5.252119	10.662382
	4500.00		5.258895	10.780488	4600.00	5.265376	10.896144
	4700.00		5.271581	11.009450	4800.00	5.277528	11.120497
	4900.00		5.283233	11.229375	5000.00	5.288709	11.336166
	5100.00		5.293970	11.440949	5200.00	5.299029	11.543797
	5300.00		5.303897	11.644780	5400.00	5.308584	11.743965
	5500.00		5.313102	11.841415	5600.00	5.317457	11.937188
	5700.00		5.321661	12.031342	5800.00	5.325719	12.123931
	5900.00		5.329639	12.215005	6000.00	5.333429	12.304612
EFDA	W 1S	J 6/66	H0/R	-598.1110MP		0.0000NT	68.0000
	100.00		0.784171	0.371880	150.00	1.266862	0.786416
	200.00		1.599613	1.199469	250.00	1.836308	1.583136
	298.15		2.006074	1.921999	300.00	2.011744	1.934369
	350.00		2.144959	2.254939	400.00	2.249682	2.548316
	450.00		2.334072	2.818607	500.00	2.404471	3.068130
	550.00		2.464257	3.300244	600.00	2.516284	3.516904
	700.00		2.603710	3.911647	800.00	2.675894	4.264142
	900.00		2.737918	4.583019	1000.00	2.792949	4.874370
	1100.00		2.842894	5.142904	1200.00	2.889026	5.392280
	1300.00		2.932316	5.625254	1400.00	2.973459	5.844018
	1500.00		3.012725	6.050587	1600.00	3.050691	6.246189
	1700.00		3.087515	6.432228	1800.00	3.123455	6.609770
	1900.00		3.158587	6.779581	2000.00	3.193153	6.942502
	2100.00		3.227233	7.099052	2200.00	3.260893	7.250009
	2300.00		3.294241	7.395625	2400.00	3.327266	7.536634
	2500.00		3.360054	7.673068	2600.00	3.392540	7.805474
	2700.00		3.425872	7.934148	2800.00	3.461505	8.059439
	2900.00		3.500859	8.181489	3000.00	3.544607	8.300950
	3100.00		3.593989	8.417903	3200.00	3.649681	8.532877
	3300.00		3.712021	8.646134	3400.00	3.781695	8.757950
	3500.00		3.860240	8.868713	3600.00	3.950356	8.978728
	3680.00		4.031585	9.066419	3680.00	5.188449	9.066419
	3700.00		5.183524	9.094527	3800.00	5.159677	9.232443
	3900.00		5.137053	9.366173	4000.00	5.115560	9.495959
	4100.00		5.095116	9.622022	4200.00	5.075645	9.744566
	4300.00		5.057080	9.863780	4400.00	5.039358	9.979835
	4500.00		5.022425	10.092893	4600.00	5.006227	10.203101
	4700.00		4.990719	10.310599	4800.00	4.975857	10.415514
	4900.00		4.961602	10.517965	5000.00	4.947916	10.618064
	5100.00		4.934768	10.715915	5200.00	4.922125	10.811616
	5300.00		4.909959	10.905257	5400.00	4.898244	10.996925
	5500.00		4.886955	11.086699	5600.00	4.876069	11.174657
	5700.00		4.865565	11.260868	5800.00	4.855423	11.345400
	5900.00		4.845625	11.428317	6000.00	4.836154	11.509678

TABLE IV. - Continued.

EFDA	XE1G	L12/91	H0/R	-745.3750MP		0.0000NT	101.0000
	100.00	2.500000	15.177345		200.00	2.500000	16.910213
	298.15	2.500000	17.908412		300.00	2.500000	17.923876
	400.00	2.500000	18.643081		500.00	2.500000	19.200940
	600.00	2.500000	19.656744		700.00	2.500000	20.042121
	800.00	2.500000	20.375949		900.00	2.500000	20.670407
	1000.00	2.500000	20.933808		1100.00	2.500000	21.172084
	1200.00	2.500000	21.389612		1300.00	2.500000	21.589719
	1400.00	2.500000	21.774989		1500.00	2.500000	21.947471
	1600.00	2.500000	22.108817		1700.00	2.500000	22.260379
	1800.00	2.500000	22.403275		1900.00	2.500000	22.538443
	2000.00	2.500000	22.666676		2100.00	2.500000	22.788651
	2200.00	2.500000	22.904952		2300.00	2.500000	23.016081
	2400.00	2.500000	23.122480		2500.00	2.500000	23.224535
	2600.00	2.500000	23.322587		2700.00	2.500000	23.416938
	2800.00	2.500000	23.507857		2900.00	2.500000	23.595585
	3000.00	2.500000	23.680339		3100.00	2.500000	23.762313
	3200.00	2.500000	23.841685		3300.00	2.500000	23.918614
	3400.00	2.500000	23.993247		3500.00	2.500000	24.065716
	3600.00	2.500000	24.136143		3700.00	2.500000	24.204640
	3800.00	2.500000	24.271311		3900.00	2.500000	24.336250
	4000.00	2.500000	24.399544		4100.00	2.500000	24.461276
	4200.00	2.500000	24.521519		4300.00	2.500000	24.580346
	4400.00	2.500000	24.637819		4500.00	2.500000	24.694002
	4600.00	2.500000	24.748949		4700.00	2.500000	24.802714
	4800.00	2.500000	24.855348		4900.00	2.500000	24.906896
	5000.00	2.500000	24.957403		5100.00	2.500000	25.006909
	5200.00	2.500000	25.055455		5300.00	2.500000	25.103075
	5400.00	2.500001	25.149806		5500.00	2.500001	25.195678
	5600.00	2.500001	25.240725		5700.00	2.500002	25.284974
	5800.00	2.500002	25.328453		5900.00	2.500003	25.371189
	6000.00	2.500004	25.413207		6200.00	2.500008	25.495182
	6400.00	2.500015	25.574554		6600.00	2.500026	25.651484
	6800.00	2.500044	25.726117		7000.00	2.500073	25.798588
	7200.00	2.500116	25.869017		7400.00	2.500180	25.937519
	7600.00	2.500274	26.004195		7800.00	2.500407	26.069143
	8000.00	2.500594	26.132450		8200.00	2.500850	26.194199
	8400.00	2.501197	26.254467		8600.00	2.501659	26.313327
	8800.00	2.502266	26.370846		9000.00	2.503051	26.427087
	9200.00	2.504055	26.482112		9400.00	2.505324	26.535978
	9600.00	2.506911	26.588739		9800.00	2.508874	26.640450
	10000.00	2.511280	26.691159		10500.00	2.519728	26.813874
	11000.00	2.532748	26.931371		11500.00	2.551932	27.044353
	12000.00	2.579091	27.153505		12500.00	2.616194	27.259503
	13000.00	2.665269	27.363026		13500.00	2.728276	27.464749
	14000.00	2.806968	27.565342		14500.00	2.902723	27.665461
	15000.00	3.016388	27.765733		15500.00	3.148136	27.866739
	16000.00	3.297365	27.969000		16500.00	3.462649	28.072956
	17000.00	3.641770	28.178956		17500.00	3.831814	28.287241
	18000.00	4.029344	28.397942		18500.00	4.230620	28.511083
	19000.00	4.431832	28.626581		19500.00	4.629336	28.744266
	20000.00	4.819852	28.863890				

TABLE IV. - Concluded.

EFDA	ZN1S	CODA89	H0/R	-680.3768MP		692.7300NT	63.0000
	100.00	1.197906	0.788982		200.00	1.942387	1.883454
	298.15	2.281995	2.724915		300.00	2.286765	2.739027
	400.00	2.492029	3.427141		500.00	2.635393	3.999394
	600.00	2.756627	4.490704		692.73	2.868068	4.894621
	692.73	4.135493	4.894621		700.00	4.131764	4.937776
	800.00	4.087360	5.486465		900.00	4.052824	5.965813
	1000.00	4.025194	6.391340		1100.00	4.002588	6.773887
	1200.00	3.983750	7.121327		1300.00	3.967810	7.439550
	1400.00	3.954147	7.733084		1500.00	3.942306	8.005479
	1600.00	3.931945	8.259572		1700.00	3.922803	8.497664
	1800.00	3.914677	8.721651		1900.00	3.907406	8.933109
	2000.00	3.900862	9.133363		2100.00	3.894942	9.323541
	2200.00	3.889559	9.504608		2300.00	3.884645	9.677396
	2400.00	3.880140	9.842628		2500.00	3.875996	10.000938
	2600.00	3.872170	10.152882		2700.00	3.868628	10.298951
	2800.00	3.865339	10.439584		2900.00	3.862277	10.575170
	3000.00	3.859418	10.706058		3100.00	3.856745	10.832564
	3200.00	3.854238	10.954971		3300.00	3.851883	11.073535
	3400.00	3.849667	11.188492		3500.00	3.847577	11.300054
	3600.00	3.845604	11.408416		3700.00	3.843737	11.513756
	3800.00	3.841968	11.616238		3900.00	3.840290	11.716013
	4000.00	3.838696	11.813220		4100.00	3.837180	11.907989
	4200.00	3.835736	12.000438		4300.00	3.834359	12.090679
	4400.00	3.833045	12.178814		4500.00	3.831789	12.264939
	4600.00	3.830588	12.349144		4700.00	3.829438	12.431513
	4800.00	3.828335	12.512124		4900.00	3.827278	12.591051
	5000.00	3.826263	12.668362		5100.00	3.825288	12.744122
	5200.00	3.824350	12.818393		5300.00	3.823448	12.891231
	5400.00	3.822579	12.962692		5500.00	3.821742	13.032825
	5600.00	3.820935	13.101680		5700.00	3.820156	13.169302
	5800.00	3.819404	13.235734		5900.00	3.818677	13.301019
	6000.00	3.817974	13.365194				
EFDA	ZR1S	J 6/79	H0/R	-661.1334MP		0.0000NT	70.0000
	100.00	1.065607	0.624811		150.00	1.540279	1.153325
	200.00	1.851582	1.642310		250.00	2.066267	2.079978
	298.15	2.217452	2.457387		300.00	2.222620	2.470981
	350.00	2.341861	2.822965		400.00	2.436403	3.142278
	450.00	2.514480	3.433796		500.00	2.580549	3.702203
	550.00	2.638323	3.950881		600.00	2.689876	4.182808
	700.00	2.781025	4.604378		800.00	2.861714	4.981202
	900.00	2.937702	5.322556		1000.00	3.011482	5.635930
	1100.00	3.084422	5.926452		1135.00	3.109897	6.023413
	1135.00	3.535563	6.023413		1200.00	3.529172	6.220050
	1300.00	3.523127	6.502238		1400.00	3.521469	6.763323
	1500.00	3.524361	7.006386		1600.00	3.531627	7.234010
	1700.00	3.543274	7.448354		1800.00	3.559240	7.651403
	1900.00	3.579601	7.844403		2000.00	3.604301	8.028615
	2100.00	3.633293	8.205168		2125.00	3.641204	8.248174
	2125.00	4.825243	8.248174		2200.00	4.832297	8.415663
	2300.00	4.840987	8.630662		2400.00	4.848953	8.836863
	2500.00	4.856281	9.034958		2600.00	4.863046	9.225558
	2700.00	4.869310	9.409210		2800.00	4.875126	9.586402
	2900.00	4.880541	9.757572		3000.00	4.885596	9.923116
	3100.00	4.890324	10.083392		3200.00	4.894756	10.238724
	3300.00	4.898920	10.389408		3400.00	4.902839	10.535714
	3500.00	4.906534	10.677889		3600.00	4.910024	10.816160
	3700.00	4.913325	10.950735		3800.00	4.916453	11.081806
	3900.00	4.919420	11.209552		4000.00	4.922238	11.334137
	4100.00	4.924920	11.455713		4200.00	4.927473	11.574423
	4300.00	4.929908	11.690397		4400.00	4.932232	11.803760
	4500.00	4.934453	11.914627		4600.00	4.936577	12.023104
	4700.00	4.938611	12.129293		4800.00	4.940560	12.233288
	4900.00	4.942429	12.335178		5000.00	4.944224	12.435047
	5100.00	4.945948	12.532973		5200.00	4.947606	12.629030
	5300.00	4.949202	12.723288		5400.00	4.950738	12.815814
	5500.00	4.952219	12.906669		5600.00	4.953646	12.995913
	5700.00	4.955024	13.083603		5800.00	4.956354	13.169791
	5900.00	4.957639	13.254528		6000.00	4.958881	13.337862

TABLE V. - FORMAT FOR 9-CONSTANT FUNCTIONAL FORM

General format:

Record	Contents	Format	Columns
1	Species name or formula	A16	1–16
	Comments and data source	A62	19–80
2	Number of T intervals	I2	1–2
	Optional identification code	A6	4–9
	Chemical formula (symbols and numbers)	5(A2,F6.2)	11–50
	Zero for gas/nonzero for condensed	I2	51–52
	Molecular weight	F13.5	53–65
	Heat of formation at 298.15K, J/mol	F13.5	66–80
3	Temperature range	2F11.3	1–22
	Number of coefficients for Cp°/R	I1	23
	T exponents in empirical equation for Cp°/R	8F5.1	24–63
	{H°(298.15) - H°(0)},J/mol	F15.3	66–80
4	First five coefficients for Cp°(T)/R	5D16.9	1–80
5	Last two coefficients for Cp°(T)/R	2D16.9	1–48
	Integration constants b_1 and b_2	2D16.9	49–80
–	Repeat 3, 4, and 5 for each interval		

Example:

```
Cl2                Chlorine gas. TPIS 1989, v1, pt2, p88.
 2 TPIS89 CL  2.00    0.00    0.00    0.00    0.00 0     70.90540          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9181.110
  3.46281724d+04 -5.54712949d+02  6.20759103d+00 -2.98963673d-03  3.17303416d-06
 -1.79363467d-09  4.26005863d-13  0.00000000d+00  1.53407075d+03 -9.43835303d+00
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9181.110
  6.09256675d+06 -1.94962688d+04  2.85453491d+01 -1.44996828d-02  4.46388943d-06
 -6.35852403d-10  3.32735931d-14  0.00000000d+00  1.21211722d+05 -1.69077832d+02
```

Empirical equations for above example (from eqs. (1) to (3)):

Heat capacity: $$\frac{C_p^o}{R} = a_1T^{-2} + a_2T^{-1} + a_3 + a_4T + a_5T^2 + a_6T^3 + a_7T^4$$

Enthalpy: $$\frac{H^o(T)}{RT} = -a_1T^{-2} + a_2T^{-1}\ln T + a_3 + a_4\frac{T}{2} + a_5\frac{T^2}{3} + a_6\frac{T^3}{4} + a_7\frac{T^4}{5} + \frac{b_1}{T}$$

Entropy: $$\frac{S^o(T)}{R} = -a_1\frac{T^{-2}}{2} - a_2T^{-1} + a_3\ln T + a_4T + a_5\frac{T^2}{2} + a_6\frac{T^3}{3} + a_7\frac{T^4}{4} + b_2$$

TABLE VI. - COEFFICIENTS FOR THE 9-CONSTANT FUNCTIONAL FORM

```
Ag(cr)              Silver Cubic Crystal. CODATA,1989, p228.
 1 CODA89 AG  1.00     0.00     0.00     0.00     0.00 1     107.86820          0.000
    200.000  1235.080 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5745.000
 -7.09923647d+04  7.25478802d+02  1.06651838d-01  5.52954155d-03 -4.42559085d-06
  2.09166812d-09 -3.88892446d-13  0.00000000d+00 -4.61401426d+03  5.07421604d+00
Ag(l)               Silver Liquid. CODATA,1989, p228.
 1 CODA89 AG  1.00     0.00     0.00     0.00     0.00 2     107.86820          0.000
   1235.080  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5745.000
  4.01707377d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -4.67226997d+02 -1.77152707d+01
Al(cr)              Aluminum Cubic Crystal. CODATA 1989, p217.
 1 CODA89 AL  1.00     0.00     0.00     0.00     0.00 1      26.98154          0.000
    200.000   933.610 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4540.000
 -6.25181143d+04  6.34393435d+02 -7.13188382d-01  1.08872528d-02 -1.45874182d-05
  9.96116088d-09 -1.77492801d-12  0.00000000d+00 -3.98543932d+03  6.56110020d+00
Al(l)               Aluminum Liquid. CODATA 1989, p217.
 1 CODA89 AL  1.00     0.00     0.00     0.00     0.00 2      26.98154          0.000
    933.610  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4540.000
  3.81862551d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.57632316d+01 -1.75255342d+01
Ar                  Argon. NSRDS-NBS 35, v1, 1971. Temperature cutoff.
 3 L 6/88 AR  1.00     0.00     0.00     0.00     0.00 0      39.94800          0.000
    200.000  1000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  4.37967491d+00
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  4.37967491d+00
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
 -1.06649969d+09  6.89368419d+05 -1.78093344d+02  2.44823754d-02 -1.80435466d-06
  6.80204522d-11 -1.00794996d-15  0.00000000d+00 -5.42334627d+06  1.55654961d+03
B(b)                Boron beta. JANAF Jun.1983, p174.        100.000
 2 J6/83  B   1.00     0.00     0.00     0.00     0.00 1      10.81100          0.000
    200.000   600.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          1214.000
  2.59827121d+05 -4.77079481d+03  3.46414062d+01 -1.28734841d-01  2.89787722d-04
 -3.30728004d-07  1.50015720d-10  0.00000000d+00  2.14695669d+04 -1.83083320d+02
    600.000  2350.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          1214.000
 -8.60743549d+02 -8.05085486d+02  4.07980166d+00 -6.42428118d-04  4.84651179d-07
 -1.25292027d-10  1.33608271d-14  0.00000000d+00  3.39818191d+03 -2.50596499d+01
B(l)                Boron liquid. JANAF Jun.1983, p174.      2350.000
 1 J6/83  B   1.00     0.00     0.00     0.00     0.00 2      10.81100          0.000
   2350.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          1214.000
  3.81862551d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00  3.36060307d+03 -2.07316730d+01
Ba(cr)              Barium Crystal. Alcock, JPCRD 1992.
 2 SRD 92 BA  1.00     0.00     0.00     0.00     0.00 1     137.32700          0.000
     80.000   298.150 5 -2.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          6906.992
 -1.12141305d+03  2.79403116d+00  3.08977919d-03 -8.81230524d-06  1.74153378d-08
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.30683800d+02 -9.10978714d+00
    298.150  1000.000 2  0.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0          6906.992
  2.77334443d+00  2.03752236d-03  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.17433810d+02 -8.90970626d+00
Ba(l)               Barium  Liquid. Alcock, JPCRD 1992.
 1 SRD 92 BA  1.00     0.00     0.00     0.00     0.00 2     137.32700          0.000
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6906.992
  4.81086679d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.92062381d+02 -2.00027571d+01
```

TABLE VI. - Continued.

```
Be(a)                Beryllium Alpha Crystal. Alcock, JPCRD 1992.
 2 SRD 92 BE  1.00     0.00     0.00     0.00     0.00 1       9.01218           0.000
    100.000   298.150 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          1942.068
  3.53237894d+03 -1.82752802d+00  1.89548151d-02 -2.12159225d-05  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.83214686d+01  6.86689411d+00
    298.150  1543.000 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          1942.068
 -7.06475788d+04  2.55036075d+00  6.84826887d-04  1.15701346d-07  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.02880367d+03 -1.39947151d+01
Be(b)                Beryllium Beta Crystal. Alcock, JPCRD 1992.
 1 SRD 92 BE  1.00     0.00     0.00     0.00     0.00 2       9.01218           0.000
   1543.000  1563.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          1942.068
  3.60815009d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -8.52449779d+02 -2.00289577d+01
Be(l)                Beryllium  Liquid. Modified Alcock, JPCRD 1992.
 1 SRD 92 BE  1.00     0.00     0.00     0.00     0.00 3       9.01218           0.000
   1563.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          1942.068
  3.54560882d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00  2.07475580d+02 -1.89534126d+01
Br2(cr)              Bromine Rhombic. TPIS 1989 v1, pt 2, p314. JANAF, 6/82.
 1 TPIS89 BR  2.00     0.00     0.00     0.00     0.00 1     159.80800           0.000
    200.000   265.900 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0        24520.000
  1.07933854d+06 -9.50431870d+03 -8.95150207d+01  1.64592907d+00 -8.63318393d-03
  2.00710278d-05 -1.74415531d-08  0.00000000d+00  5.48248005d+04  2.47693618d+02
Br2(l)               Bromine Liquid.  TPIS 1989 v1, pt 2, p314. JANAF, 6/82.
 2 TPIS89 BR  2.00     0.00     0.00     0.00     0.00 2     159.80800           0.000
    265.900   332.503 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0        24520.000
  4.02349518d+06 -3.95253257d+04 -2.24697676d+01  1.95846276d+00 -1.01581659d-02
  2.16179654d-05 -1.70837362d-08  0.00000000d+00  2.13432258d+05 -2.53261320d+02
    332.503  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0        24520.000
  9.05668643d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.69985562d+03 -3.32934996d+01
C(gr)                Graphite. TRC Tables VC,UC,TC-1000-1002,Apr 30,1983.
 3 X 4/83 C   1.00     0.00     0.00     0.00     0.00 1      12.01100           0.000
    200.000   600.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         1053.500
  1.13284613d+05 -1.98040218d+03  1.36536969d+01 -4.63604056d-02  1.02132125d-04
 -1.08288035d-07  4.47220215d-11  0.00000000d+00  8.94377162d+03 -7.29574863d+01
    600.000  2000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         1053.500
  3.35599670d+05 -2.59652393d+03  6.94883168d+00 -3.48482394d-03  1.84418460d-06
 -5.05517936d-10  5.75060394d-14  0.00000000d+00  1.39840993d+04 -4.47717647d+01
   2000.000  5000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         1053.500
  2.03689759d+05 -1.14096042d+03  3.70248083d+00 -1.84310886d-04  6.36532218d-08
 -7.09483559d-12  3.34838385d-16  0.00000000d+00  5.86651046d+03 -2.35256824d+01
Ca(a)                Calcium Alpha Crystal. Alcock, JPCRD 1992.
 2 SRD 92 CA  1.00     0.00     0.00     0.00     0.00 1      40.07800           0.000
    200.000   298.150 6 -2.0 -1.0  0.0  1.0  2.0  3.0  0.0  0.0         5782.945
 -8.38564472d+05  1.76528605d+04 -1.46459817d+02  6.31616674d-01 -1.32921936d-03
  1.11775658d-06  0.00000000d+00  0.00000000d+00 -7.82628469d+04  7.54964272d+02
    298.150   716.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         5782.945
 -6.26229648d+05  8.18556583d+03 -4.06398669d+01  1.20386393d-01 -1.80184335d-04
  1.44317710d-07 -4.73132858d-11  0.00000000d+00 -4.06434046d+04  2.31531550d+02
Ca(b)                Calcium Beta Crystal. Alcock, JPCRD 1992.
 1 SRD 92 CA  1.00     0.00     0.00     0.00     0.00 2      40.07800           0.000
    716.000  1115.000 3  0.0  1.0  2.0  0.0  0.0  0.0  0.0  0.0         5782.945
  5.70111768d+00 -5.81056490d-03  4.02212518d-06  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.51673911d+03 -2.60757190d+01
Ca(l)                Calcium  Liquid. Alcock, JPCRD 1992.
 1 SRD 92 CA  1.00     0.00     0.00     0.00     0.00 3      40.07800           0.000
   1115.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0         5782.945
  4.57032345d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.82218808d+02 -2.11987699d+01
Cd(cr)               Cadmium Crystal. CODATA 1989, p223.
 1 CODA89 CD  1.00     0.00     0.00     0.00     0.00 1     112.41100           0.000
    100.000   594.258 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         6247.000
  1.37527314d+05 -3.22158985d+03  3.12190528d+01 -1.22613669d-01  2.83888027d-04
 -3.28688363d-07  1.52046961d-10  0.00000000d+00  1.30280694d+04 -1.55132402d+02
Cd(l)                Cadmium Liquid. CODATA 1989, p223.
 1 CODA89 CD  1.00     0.00     0.00     0.00     0.00 2     112.41100           0.000
    594.258  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0         6247.000
  3.59612292d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -4.22039477d+02 -1.32329816d+01
```

TABLE VI. - Continued.

```
Cl2                 Chlorine gas. TPIS 1989, v1, pt2, p88.
 2 TPIS89 CL  2.00    0.00    0.00    0.00    0.00 0     70.90540          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9181.110
  3.46281724d+04 -5.54712949d+02  6.20759103d+00 -2.98963673d-03  3.17303416d-06
 -1.79363467d-09  4.26005863d-13  0.00000000d+00  1.53407075d+03 -9.43835303d+00
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9181.110
  6.09256675d+06 -1.94962688d+04  2.85453491d+01 -1.44996828d-02  4.46388943d-06
 -6.35852403d-10  3.32735931d-14  0.00000000d+00  1.21211722d+05 -1.69077832d+02
Co(a)               Cobalt Alpha Crystal. JANAF, SEPT. 1967.
 2 J 9/67 CO  1.00    0.00    0.00    0.00    0.00 1     58.93320          0.000
    200.000   500.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4771.000
-8.652446060D+05 1.462253209D+04-9.972017980D+01 3.794720530D-01-7.800971910D-04
 8.554609750D-07-3.890648690D-10 0.000000000D+00-6.796490570D+04 5.307032100D+02
    500.000   700.100 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4771.000
-9.858622510D+05 6.807553490D+03-1.518281739D+01 2.230724772D-02-9.003048680D-06
 0.000000000D+00 0.000000000D+00 0.000000000D+00-3.845619250D+04 1.012261440D+02
Co(b)               Cobalt Beta, Lambda transition at 1394K. JANAF,9/1967.
 4 J 9/67 CO  1.00    0.00    0.00    0.00    0.00 2     58.93320          0.000
    700.100   800.000 2  0.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0          4771.000
 2.125113883D+00 2.218475346D-03 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-6.197709420D+02-8.944546980D+00
    800.000  1394.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4771.000
 2.165664332D+07-9.459479610D+04 1.575241107D+02-1.120514746D-01 3.190930190D-05
 0.000000000D+00 0.000000000D+00 0.000000000D+00 5.655818490D+05-1.067845763D+03
   1394.000  1400.000 2  0.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0          4771.000
 3.083584404D+02-2.164567334D-01 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-2.148220098D+05-1.921045340D+03
   1400.000  1768.000 4 -1.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4771.000
 1.563103956D+05-2.660224781D+02 1.560064075D-01-2.995804151D-05 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-8.806490490D+05 1.859461480D+03
Co(l)               Cobalt Liquid. JANAF, SEPT. 1967.
 1 J 9/67 CO  1.00    0.00    0.00    0.00    0.00 3     58.93320          0.000
   1768.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4771.000
 4.871122892D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-1.771752486D+02-2.448546078D+01
Cr(cr)              Chromium Crystal. Lambda trans. 311.5K. JANAF. June 1973
 3 J 6/73 CR  1.00    0.00    0.00    0.00    0.00 1     51.99610          0.000
    200.000   311.500 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4057.000
 8.050977490D+05-1.339826182D+04 8.273410890D+01-2.075832465D-01 2.008740848D-04
 0.000000000D+00 0.000000000D+00 0.000000000D+00 6.182279460D+04-4.559918050D+02
    311.500  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4057.000
-2.656384317D+05 3.248349440D+03-1.413201111D+01 4.443712380D-02-5.767961420D-05
 3.742240540D-08-9.198563660D-12 0.000000000D+00-1.672037320D+04 8.176230500D+01
   1000.000  2130.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4057.000
 4.882406160D+05 1.414874653D+02 3.261341510D-01 2.872341027D-03 3.847978740D-09
 0.000000000D+00 0.000000000D+00 0.000000000D+00 1.072620735D+02 2.056599199D+00
Cr(l)               Chromium Liquid. JANAF. June 1973.
 1 J 6/73 CR  1.00    0.00    0.00    0.00    0.00 2     51.99610          0.000
   2130.000  6000.000 1  0.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4057.000
 4.730284767D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00 5.755097610D+02-2.453203182D+01
Cs(cr)              Cesium Crystal. CODATA, 1989, p263.
 1 CODA89 CS  1.00    0.00    0.00    0.00    0.00 1    132.90543          0.000
    100.000   301.590 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          7711.000
  6.51984125d+04 -1.75663905d+03  1.99968107d+01 -6.93832873d-02  1.09368254d-04
  0.00000000d+00  0.00000000d+00  0.00000000d+00  6.38289073d+03 -9.33825145d+01
Cs(l)               Cesium Liquid. CODATA, 1989, p263.
 2 CODA89 CS  1.00    0.00    0.00    0.00    0.00 2    132.90543          0.000
    301.590  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          7711.000
 -4.21832769d+04 -1.74310318d+01  5.70212472d+00 -5.11366989d-03  3.20140701d-06
 -1.76574712d-10  4.82212937d-14  0.00000000d+00 -1.29094981d+03 -2.03140758d+01
   1000.000  2000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          7711.000
 -7.26659499d+05  3.00676906d+03  1.69641895d-01  2.91256032d-04  1.76880825d-07
  7.73027452d-10 -8.90216532d-14  0.00000000d+00 -1.92376169d+04  1.64100374d+01
```

TABLE VI. - Continued.

```
Cu(cr)              Copper Cubic Crystal. CODATA, 1989, p226.
 1 CODA89 CU  1.00     0.00     0.00     0.00     0.00 1      63.54600          0.000
    200.000  1358.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5004.000
 -2.45577517d+04  1.64806928d+02  2.08094710d+00  2.63907840d-03 -2.71410148d-06
  1.40286505d-09 -9.72432327d-14  0.00000000d+00 -1.73785101d+03 -8.13316658d+00
Cu(l)               Copper Liquid. CODATA, 1989, p226.
 1 CODA89 CU  1.00     0.00     0.00     0.00     0.00 2      63.54600          0.000
   1358.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5004.000
  3.94491076d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.11101378d+02 -1.83606577d+01
D2                  Deuterium. TPIS, 1989, v1, pt2, pp45-6.
 3 TPIS89 D   2.00     0.00     0.00     0.00     0.00 0       4.02820          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8569.103
  2.12578989d+04 -2.99694507d+02  5.13031451d+00 -4.17296958d-03  5.01434380d-06
 -2.12638854d-09  2.38653277d-13  0.00000000d+00  3.94498190d+02 -1.16419095d+01
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8569.103
  8.21515641d+05 -2.36561983d+03  5.34297106d+00  6.92832217d-05 -8.52371794d-08
  2.45645364d-11 -1.96060094d-15  0.00000000d+00  1.43421244d+04 -1.71259786d+01
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8569.103
  4.89968473d+08 -3.11279617d+05  7.94573202d+01 -8.42554949d-03  4.78927371d-07
 -1.39085537d-11  1.63752128d-16  0.00000000d+00  2.46003103d+06 -6.63681004d+02
ELECTRON GAS        CP/R = 2.5
 3 L 6/88 E   1.00     0.00     0.00     0.00     0.00 0       0.00055          0.000
    200.000  1000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02 -1.17208127d+01
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02 -1.17208127d+01
   6000.000 20000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02 -1.17208127d+01
F2                  Fluorine gas. TPIS 1989, v1, pt2, p73.
 2 TPIS89 F   2.00     0.00     0.00     0.00     0.00 0      37.99681          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8825.106
  1.01817754d+04  2.27422347d+01  1.97135403d+00  8.15160123d-03 -1.14895968d-05
  7.95864947d-09 -2.16707863d-12  0.00000000d+00 -9.58693453d+02  1.13059974d+01
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8825.106
 -2.94116687d+06  9.45659515d+03 -7.73861346d+00  7.64471159d-03 -2.24100723d-06
  2.91584473d-10 -1.42503371d-14  0.00000000d+00 -6.07100397d+04  8.42383313d+01
Fe(a)               Iron , Lambda transition at 1042K. JANAF, MAR.1978.
 4 J 3/78 FE  1.00     0.00     0.00     0.00     0.00 1      55.84700          0.000
    200.000   500.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4507.000
 1.350839160D+04-7.804478160D+02 9.440700400D+00-2.521985194D-02 5.350663440D-05
-5.099678950D-08 1.994145811D-11 0.000000000D+00 2.416821541D+03-4.749277250D+01
    500.000   800.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4507.000
 3.543029090D+06-2.447148112D+04 6.561015020D+01-7.043923340D-02 3.181050360D-05
 0.000000000D+00 0.000000000D+00 0.000000000D+00 1.345058629D+05-4.133784890D+02
    800.000  1042.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4507.000
 2.703935561D+09-8.193500100D+06 3.916047750D+02 2.426246840D+01-3.321825970D-02
 1.680225343D-05-2.741960693D-09 0.000000000D+00 5.420327990D+07-2.210724155D+04
   1042.000  1184.000 3 -1.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4507.000
 6.731822540D+05-1.167255652D+03 5.098564630D-01 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-3.735140010D+06 8.234248220D+03
Fe(c)               Iron Gamma Crystal. JANAF, MAR.1978.
 1 J 3/78 FE  1.00     0.00     0.00     0.00     0.00 2      55.84700          0.000
   1184.000  1665.000 5 -1.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          4507.000
 7.764944350D+04-2.142017878D+02 2.275127354D-01-1.045937397D-04 1.804124598D-08
 0.000000000D+00 0.000000000D+00 0.000000000D+00-4.021609040D+05 1.384549635D+03
Fe(d)               Iron Delta Crystal. JANAF, MAR.1978.
 1 J 3/78 FE  1.00     0.00     0.00     0.00     0.00 3      55.84700          0.000
   1665.000  1809.000 3 -1.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4507.000
 9.282252580D+03-7.771494620D+00 4.288995210D-03 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-5.549788070D+04 6.678224840D+01
Fe(l)               Iron Liquid. JANAF, MAR.1978.
 1 J 3/78 FE  1.00     0.00     0.00     0.00     0.00 4      55.84700          0.000
   1809.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4507.000
 5.535383324D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-1.269795123D+03-2.948078015D+01
```

TABLE VI. - Continued.

```
Ge(cr)              Germanium Cubic. TPIS 1991, v2, pt1, p308, pt2 p268.
 2 TPIS91 GE  1.00     0.00     0.00     0.00     0.00 1      72.61000          0.000
    200.000   400.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4636.360
 -2.39650371d+05  3.15056873d+03 -1.33393959d+01  3.64799385d-02 -2.94210133d-05
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.61388131d+04  7.93920158d+01
    400.000  1211.400 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4636.360
 -1.88824135d+04  2.89817304d+00  3.59165939d-04  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.43386385d+02 -1.29866971d+01
Ge(l)               Germanium Liquid. TPIS 1991, v2, pt1, p308, pt2 p268.
 1 TPIS91 GE  1.00     0.00     0.00     0.00     0.00 2      72.61000          0.000
   1211.400  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4636.360
  3.31949808d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00  3.27899664d+03 -1.18599295d+01
H2                  Hydrogen. GLUSHKO ET.AL. v1, pt2, 1978, pp31-32.
 3 TPIS78 H   2.00     0.00     0.00     0.00     0.00 0       2.01588          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8468.102
  4.07832281d+04 -8.00918545d+02  8.21470167d+00 -1.26971436d-02  1.75360493d-05
 -1.20286016d-08  3.36809316d-12  0.00000000d+00  2.68248438d+03 -3.04378866d+01
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8468.102
  5.60812338d+05 -8.37149134d+02  2.97536304d+00  1.25224993d-03 -3.74071842d-07
  5.93662825d-11 -3.60699573d-15  0.00000000d+00  5.33981585d+03 -2.20276405d+00
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8468.102
  4.96671613d+08 -3.14744812d+05  7.98388750d+01 -8.41450419d-03  4.75306044d-07
 -1.37180973d-11  1.60537460d-16  0.00000000d+00  2.48835466d+06 -6.69552419d+02
He                  Helium. NSRDS-NBS 35, 1971. Temperature cutoff.
 3 L10/90 HE  1.00     0.00     0.00     0.00     0.00 0       4.00260          0.000
    200.000  1000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  9.28723974d-01
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  9.28723974d-01
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
  4.49657717d+06 -2.76520860d+03  3.19328263d+00 -9.11889220d-05  6.69027627d-09
 -2.62322412d-13  4.34087884d-18  0.00000000d+00  2.11382740d+04 -5.05672478d+00
Hg(cr)              Mercury Tetragonal Crystal. JANAF, Dec. 1961.
 1 J12/61 HG  1.00     0.00     0.00     0.00     0.00 1     200.59000          0.000
    100.000   234.290 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          9343.000
 -3.18458668d+03  3.46442487d+00 -4.05486461d-03  1.76628113d-05  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.28245434d+03 -1.13201016d+01
Hg(l)               Mercury Liquid. JANAF, Dec. 1961.
 2 J12/61 HG  1.00     0.00     0.00     0.00     0.00 2     200.59000          0.000
    234.290   600.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9343.000
  1.05832237d+05 -1.99382117d+03  1.88057375d+01 -5.99466940d-02  1.22832483d-04
 -1.29315316d-07  5.53072552d-11  0.00000000d+00  7.91675530d+03 -9.06485332d+01
    600.000  2000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          9343.000
  7.91380154d+05 -3.95630498d+03  1.10646079d+01 -8.15392266d-03  4.97046569d-06
 -1.51041551d-09  1.87203419d-13  0.00000000d+00  2.21375986d+04 -6.07242904d+01
I2(cr)              Iodine Rhombic Crystal. TPIS 1989, v1, pt2, p315.
 1 TPIS89 I   2.00     0.00     0.00     0.00     0.00 1     253.80894          0.000
    200.000   386.750 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0         13196.000
 -3.91590252d+06  9.17546472d+04 -8.92978654d+02  4.68534133d+00 -1.36091945d-02
  2.07924325d-05 -1.29598302d-08  0.00000000d+00 -3.92659648d+05  4.43738168d+03
I2(l)               Iodine Liquid. TPIS 1989, v1, pt2, p315.
 1 TPIS89 I   2.00     0.00     0.00     0.00     0.00 2     253.80894          0.000
    386.750  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0         13196.000
  9.56821268d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.20445382d+03 -3.63732610d+01
K(cr)               Potassium Cubic Crystal.  CODATA 1989, p257.
 1 CODA89 K   1.00     0.00     0.00     0.00     0.00 1      39.09830          0.000
    200.000   336.860 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          7088.000
 -1.02203174d+05  1.33375201d+01 -5.58099071d-02  9.01300905d-05  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.63506242d+03 -5.61537649d+01
K(l)                Potassium Liquid.  CODATA 1989, p257.
 1 CODA89 K   1.00     0.00     0.00     0.00     0.00 2      39.09830          0.000
    336.860  2200.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          7088.000
 -3.93579278d+03 -4.54722866d+01  4.84524269d+00 -3.08354487d-03  2.01554768d-06
 -3.70613204d-11  5.03283971d-15  0.00000000d+00 -8.07563697d+02 -1.83664092d+01
```

TABLE VI. - Continued.

```
Kr                  Krypton. NSRDS-NBS 35, 1971. Temperature cutoff.
 3 L10/90 KR  1.00     0.00     0.00     0.00     0.00 0      83.80000          0.000
    200.000  1000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  5.49095651d+00
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  5.49095651d+00
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
 -2.63908780d+09  1.65974315d+06 -4.20455715d+02  5.58583797d-02 -4.02624981d-06
  1.49484943d-10 -2.20230087d-15  0.00000000d+00 -1.31023881d+07  3.65224315d+03
Li(cr)              Lithium Crystal. Gurvich 1982,vIV,pt 1,p245;pt 2,p286.
 2 TPIS82 LI  1.00     0.00     0.00     0.00     0.00 1       6.94100          0.000
    200.000   298.150 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4632.000
 -9.86065231d+03  2.30432385d+00  2.67166372d-03  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -8.38853612d+02 -1.04788169d+01
    298.150   453.690 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4632.000
  7.23882507d+04  1.57031423d-01  6.77040415d-03  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.04949734d+02  9.96176448d-01
Li(l)               Lithium Liquid. Gurvich 1982,vIV,pt 1,p245;pt 2,p286.
 1 TPIS82 LI  1.00     0.00     0.00     0.00     0.00 2       6.94100          0.000
    453.690  6000.000 4  0.0  1.0 -2.0  2.0  0.0  0.0  0.0  0.0          4632.000
  3.75572343d+00 -6.33230341d-04  2.46556923d+04  3.16073948d-07  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.29911669d+02 -1.70127465d+01
Mg(cr)              Magnesium Hexagonal Crystal. Alcock, JPCRD 1992.
 2 SRD 92 MG  1.00     0.00     0.00     0.00     0.00 1      24.30500          0.000
    100.000   298.150 5 -2.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          4979.161
 -5.41222513d+03  1.45817372d+00  1.33020467d-02 -4.09885850d-05  4.75433910d-08
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.75947201d+02 -6.98970235d+00
    298.150   923.000 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4979.161
 -2.86006030d+04  3.39887738d+00 -7.24396266d-04  1.40525419d-06  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.08951991d+03 -1.54597366d+01
Mg(l)               Magnesium  Liquid. Alcock, JPCRD 1992.
 1 SRD 92 MG  1.00     0.00     0.00     0.00     0.00 2      24.30500          0.000
    923.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4979.161
  4.12531827d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -6.58991948d+02 -1.93782858d+01
Mn(a)               Manganese Alpha crystal.  JANAF Sep.1967.
 1 J 9/67 MN  1.00     0.00     0.00     0.00     0.00 1      54.93805          0.000
    200.000   980.000 5 -2.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          4994.000
-1.233096191D+04 2.550461313D+00 2.958134143D-03-1.694845658D-06 7.535779960D-10
 0.000000000D+00 0.000000000D+00 0.000000000D+00-9.197731690D+02-1.156425686D+01
Mn(b)               Manganese Beta crystal.  JANAF Sep.1967.
 1 J 9/67 MN  1.00     0.00     0.00     0.00     0.00 2      54.93805          0.000
    980.000  1361.000 5 -2.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          4994.000
-6.198208160D+06 4.902844500D+01-7.569603190D-02 4.819965140D-05-1.079976674D-08
 0.000000000D+00 0.000000000D+00 0.000000000D+00-2.773218599D+04-2.778847099D+02
Mn(c)               Manganese Gamma crystal.  JANAF Sep.1967.
 1 J 9/67 MN  1.00     0.00     0.00     0.00     0.00 3      54.93805          0.000
   1361.000  1412.000 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4994.000
-5.716587660D+06 1.276906176D+01-3.306229750D-03 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-1.357848658D+04-7.887772440D+01
Mn(d)               Manganese Delta crystal.  JANAF Sep.1967.
 1 J 9/67 MN  1.00     0.00     0.00     0.00     0.00 4      54.93805          0.000
   1412.000  1519.000 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          4994.000
-4.426985750D+06 1.025240427D+01-1.835834640D-03 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-1.035145565D+04-6.221774140D+01
Mn(l)               Manganese Liquid.  JANAF Sep.1967.
 1 J 9/67 MN  1.00     0.00     0.00     0.00     0.00 5      54.93805          0.000
   1519.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4994.000
 5.535383324D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-9.396236720D+02-2.853633820D+01
```

TABLE VI. - Continued.

```
Mo(cr)              Molybdenum Crystal. JANAF Mar.1978.
 3 J 3/78 MO  1.00     0.00     0.00     0.00     0.00 1      95.94000          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4585.000
-4.961689500D+04 4.280941440D+02 7.671983260D-01 5.731518660D-03-6.381641800D-06
 3.708192890D-09-7.917348490D-13 0.000000000D+00-3.039584742D+03-1.230466896D+00
   1000.000  2200.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4585.000
-3.616012760D+06 1.473986432D+04-2.135564398D+01 2.117590704D-02-9.784878870D-06
 2.494871270D-09-2.420965400D-13 0.000000000D+00-8.973972340D+04 1.506415472D+02
   2200.000  2896.000 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4585.000
-5.425151160D+07 6.456125010D+01-3.577926680D-02 6.215211850D-06 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-9.517441940D+04-4.285055390D+02
Mo(l)               Molybdenum Liquid. JANAF Mar.1978.
 1 J 3/78 MO  1.00     0.00     0.00     0.00     0.00 2      95.94000          0.000
   2896.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4585.000
 4.528949992D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00 2.021739162D+03-2.280808914D+01
N2                  Nitrogen. GLUSHKO ET.AL. v1, pt2, p207, 1978.
 3 TPIS78 N   2.00     0.00     0.00     0.00     0.00 0      28.01348          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8670.104
  2.21037122d+04 -3.81846145d+02  6.08273815d+00 -8.53091381d-03  1.38464610d-05
 -9.62579293d-09  2.51970560d-12  0.00000000d+00  7.10845911d+02 -1.07600320d+01
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8670.104
  5.87709908d+05 -2.23924255d+03  6.06694267d+00 -6.13965296d-04  1.49179819d-07
 -1.92309442d-11  1.06194871d-15  0.00000000d+00  1.28320618d+04 -1.58663484d+01
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8670.104
  8.30971200d+08 -6.42048187d+05  2.02020507d+02 -3.06501961d-02  2.48685558d-06
 -9.70579208d-11  1.43751673d-15  0.00000000d+00  4.93850663d+06 -1.67204791d+03
Na(cr)              Sodium Cubic Crystal.  CODATA 1989, p254.
 1 CODA89 NA  1.00     0.00     0.00     0.00     0.00 1      22.98977          0.000
    200.000   371.010 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          6460.000
 -3.58445796d+04  6.47941467d+00 -1.89869733d-02  3.35238708d-05  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.50431974d+03 -2.67778303d+01
Na(l)               Sodium Liquid.  CODATA 1989, p254.
 1 CODA89 NA  1.00     0.00     0.00     0.00     0.00 2      22.98977          0.000
    371.010  2300.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6460.000
  2.69483872d+04 -2.31901391d+02  5.16243895d+00 -3.05857602d-03  1.69641061d-06
 -1.51964196d-10  1.96287017d-14  0.00000000d+00  2.84218762d+02 -2.22576606d+01
Nb(cr)              Niobium Crystal.  JANAF, Dec. 1973.
 3 J12/73 NB  1.00     0.00     0.00     0.00     0.00 1      92.90638          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5241.000
-4.254811830D+04 3.875297290D+02 1.184449627D+00 4.507436940D-03-5.232092470D-06
 3.513452830D-09-9.507606910D-13 0.000000000D+00-2.864449417D+03-2.442974494D+00
   1000.000  2000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5241.000
 2.530146384D+07-1.086776888D+05 1.931042091D+02-1.729178828D-01 8.680368580D-05
-2.268651192D-08 2.440192492D-12 0.000000000D+00 6.478615100D+05-1.285277905D+03
   2000.000  2750.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          5241.000
 2.781944995D+08-5.202613500D+05 3.684592150D+02-1.142906796D-01 1.368122224D-05
 0.000000000D+00 0.000000000D+00 0.000000000D+00 3.554615290D+06-2.814060475D+03
Nb(l)               Niobium Liquid.  JANAF, Dec. 1973.
 1 J12/73 NB  1.00     0.00     0.00     0.00     0.00 2      92.90638          0.000
   2750.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5241.000
 4.025733326D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00 1.427048829D+03-1.857964562D+01
Ne                  Neon. NSRDS-NBS 35, 1971. Temperature cutoff.
 3 L10/90 NE  1.00     0.00     0.00     0.00     0.00 0      20.17970          0.000
    200.000  1000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  3.35532272d+00
   1000.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6197.428
  2.50000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.45375000d+02  3.35532272d+00
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
  6.26181560d+07 -3.81071521d+04  1.19019437d+01 -1.20827544d-03  8.59337454d-08
 -3.24608523d-12  5.17340351d-17  0.00000000d+00  3.01326057d+05 -7.79987192d+01
```

TABLE VI. - Continued.

```
Ni(cr)              Nickel Crystal Lambda trans 631K. JANAF Dec.1976.
 4 J12/76 NI  1.00     0.00     0.00     0.00     0.00 1      58.69340          0.000
    200.000   400.000 6 -2.0 -1.0  0.0  1.0  2.0  3.0  0.0  0.0          4786.000
-7.689620450D+05 1.434043067D+04-1.042812023D+02 3.926470170D-01-6.987260990D-04
 4.906315690D-07 0.000000000D+00 0.000000000D+00-6.544186480D+04 5.511714720D+02
    400.000   631.000 6 -2.0 -1.0  0.0  1.0  2.0  3.0  0.0  0.0          4786.000
-3.337328750D+08 3.416013180D+06-1.391060599D+04 2.819051209D+01-2.841352773D-02
 1.140296889D-05 0.000000000D+00 0.000000000D+00-1.745874248D+07 8.160018820D+04
    631.000  1200.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4786.000
 1.038028362D+09-6.825276110D+06 1.857903283D+04-2.678491662D+01 2.158258231D-02
-9.213924210D-06 1.628345439D-09 0.000000000D+00 3.778503540D+07-1.159797799D+05
   1200.000  1728.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4786.000
 3.185928740D+07-8.638379620D+04 9.054086750D+01-3.862770600D-02 6.753325430D-06
 0.000000000D+00 0.000000000D+00 0.000000000D+00 5.577073250D+05-6.526078730D+02
Ni(l)               Nickel Liquid. JANAF Dec.1976.
 1 J12/76 NI  1.00     0.00     0.00     0.00     0.00 2      58.69340          0.000
   1728.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4786.000
 4.679890938D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-3.213745510D+02-2.335451943D+01
O2                  Oxygen. Gurvich et al. v1, pt 2, p9, 1989.
 3 TPIS89 O   2.00     0.00     0.00     0.00     0.00 0      31.99880          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8680.104
 -3.42556269d+04  4.84699986d+02  1.11901159d+00  4.29388743d-03 -6.83627313d-07
 -2.02337478d-09  1.03904064d-12  0.00000000d+00 -3.39145434d+03  1.84969912d+01
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8680.104
 -1.03793994d+06  2.34483275d+03  1.81972949d+00  1.26784887d-03 -2.18807142d-07
  2.05372411d-11 -8.19349062d-16  0.00000000d+00 -1.68901253d+04  1.73871835d+01
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          8680.104
  4.97515261d+08 -2.86602339d+05  6.69015464d+01 -6.16971869d-03  3.01623757d-07
 -7.42087888d-12  7.27744063d-17  0.00000000d+00  2.29348755d+06 -5.53044968d+02
P(cr)               Phosphorus Crystal(White). TPIS 1989. JANAF June,1961.
 1 TPIS89 P   1.00     0.00     0.00     0.00     0.00 1      30.97376          0.000
    195.400   317.300 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          5360.000
-7.046548960D+04 1.156138540D+03-5.449495540D+00 2.448899984D-02-2.330384839D-05
 0.000000000D+00 0.000000000D+00 0.000000000D+00-6.081363540D+03 3.320673440D+01
P(l)                Phosphorus Liquid. TPIS 1989.
 1 TPIS89 P   1.00     0.00     0.00     0.00     0.00 2      30.97376          0.000
    317.300  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5360.000
 3.141496011D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-8.621495540D+02-1.272275042D+01
Pb(cr)              Lead Cubic. TPIS 1991, v1, p400, v2, p337.
 1 TPIS91 PB  1.00     0.00     0.00     0.00     0.00 1     207.20000          0.000
    200.000   600.650 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6870.000
 -6.14963371d+05  1.06571168d+04 -7.12985369d+01  2.66839007d-01 -5.18198386d-04
  5.23863012d-07 -2.15163077d-10  0.00000000d+00 -4.97404840d+04  3.85580206d+02
Pb(l)               Lead Liquid. TPIS 1991, v1, p400, v2, p337.
 1 TPIS91 PB  1.00     0.00     0.00     0.00     0.00 2     207.20000          0.000
    600.650  3600.000 5  0.0  1.0 -2.0  2.0  3.0  0.0  0.0  0.0          6870.000
  4.36429808d+00 -1.23639276d-03 -3.79817933d+04  4.94677377d-07 -5.23181763d-11
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -8.88733046d+02 -1.61955968d+01
Rb(cr)              Rubidium Cubic Crystal. CODATA 1989. p260. JANAF 12/83.
 1 CODA89 RB  1.00     0.00     0.00     0.00     0.00 1      85.46780          0.000
    100.000   312.470 6 -2.0 -1.0  0.0  1.0  2.0  3.0  0.0  0.0          7489.000
 -1.69367859d+05  5.11676389d+03 -5.68676003d+01  3.40354309d-01 -9.34799517d-04
  1.01751224d-06  0.00000000d+00  0.00000000d+00 -2.16454707d+04  2.80535066d+02
Rb(l)               Rubidium Liquid. CODATA 1989. p260.
 2 CODA89 RB  1.00     0.00     0.00     0.00     0.00 2      85.46780          0.000
    312.470  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          7489.000
  2.36239429d+04  2.86935048d+02  1.54498856d+00  5.16831217d-03 -6.07029270d-06
  3.35063626d-09 -5.18539891d-13  0.00000000d+00 -1.93550099d+03  1.06955958d+00
   1000.000  2100.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          7489.000
 -3.67448669d+05  1.77978869d+03 -3.42604680d-01  5.32311098d-03 -4.26280615d-06
  1.69980461d-09 -4.41814026d-14  0.00000000d+00 -1.11133067d+04  1.47790546d+01
```

TABLE VI. - Continued.

```
S(a)                Sulfur Alpha Crystal. TPIS 1989.
 1 TPIS89 S   1.00    0.00    0.00    0.00    0.00 1     32.06600          0.000
    200.000   368.300 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4412.000
-1.035710779D+04 1.866766938D+00 4.256140250D-03-3.265252270D-06 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-7.516389580D+02-7.961066980D+00
S(b)                Sulfur Beta Crystal. TPIS 1989.
 1 TPIS89 S   1.00    0.00    0.00    0.00    0.00 2     32.06600          0.000
    368.300   388.360 2  0.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0          4412.000
 2.080514131D+00 2.440879557D-03 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-6.852714730D+02-8.607846750D+00
S(l)                Sulfur Liquid. TPIS 1989.
 5 TPIS89 S   1.00    0.00    0.00    0.00    0.00 3     32.06600          0.000
    388.360   428.150 4  0.0  1.0 -2.0  2.0  0.0  0.0  0.0  0.0          4412.000
 2.376860693D+03-7.888076026D+00-6.366550765D+07 7.376076522D-03 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-6.356594920D+05-1.186929589D+04
    428.150   432.250 3  0.0  1.0  2.0  0.0  0.0  0.0  0.0  0.0          4412.000
 6.928522306D+03-3.254655981D+01 3.824448176D-02 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-9.832222680D+05-3.154806751D+04
    432.250   453.150 3  0.0  1.0  2.0  0.0  0.0  0.0  0.0  0.0          4412.000
 1.649945697D+02-6.843534977D-01 7.315907973D-04 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-2.638846929D+04-7.681730097D+02
    453.150   717.000 4  0.0  1.0 -2.0  2.0  0.0  0.0  0.0  0.0          4412.000
-2.441009753D+01 6.090352889D-02 1.972984578D+06-3.744069103D-05 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00 1.113013440D+04 1.363174183D+02
    717.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4412.000
 3.848693429D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-8.284589830D+02-1.736128237D+01
Si(cr)              Silicon Cubic. TPIS 1991, v1, p237, v2, p220.
 2 TPIS91 SI  1.00    0.00    0.00    0.00    0.00 1     28.08550          0.000
    200.000   298.150 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          3217.471
 -2.32353821d+04  2.10202168d+00  1.80922055d-03  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.85063521d+02 -1.03842732d+01
    298.150  1690.000 3 -2.0  0.0  1.0  0.0  0.0  0.0  0.0  0.0          3217.471
 -5.23255973d+04  2.85016942d+00  3.97516697d-04  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.04294723d+03 -1.43896419d+01
Si(l)               Silicon Liquid. TPIS 1991, v1, p237, v2, p220.
 1 TPIS91 SI  1.00    0.00    0.00    0.00    0.00 2     28.08550          0.000
   1690.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          3217.471
  3.27138941d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00  4.88266711d+03 -1.32661107d+01
Sn(cr)              Tin CrI,tetragonal. TPIS 1991, pt1, p350, pt2, p300.
 1 TPIS91 SN  1.00    0.00    0.00    0.00    0.00 1    118.71000          0.000
    200.000   505.118 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6323.000
 -9.97024407d+05  1.86499389d+04 -1.39295611d+02  5.65260001d-01 -1.22911721d-03
  1.39820635d-06 -6.46558470d-10  0.00000000d+00 -8.47956756d+04  7.31772689d+02
Sn(l)               Tin Liquid. TPIS 1991, pt1, p350, pt2, p300.
 1 TPIS91 SN  1.00    0.00    0.00    0.00    0.00 2    118.71000          0.000
    505.118  4700.000 4  0.0  1.0 -2.0  2.0  0.0  0.0  0.0  0.0          6323.000
  3.02892173d+00  2.53171865d-04  9.84784431d+04 -1.96042822d-08  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00  2.20965170d+02 -9.08978377d+00
Sr(a)               Strontium Alpha Crystal. Alcock, JPCRD 1992.
 2 SRD 92 SR  1.00    0.00    0.00    0.00    0.00 1     87.62000          0.000
    100.000   298.150 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6558.289
 -4.15030815d+03  1.55984581d+02 -2.62349821d-01  2.94539370d-02 -1.21295032d-04
  2.40106673d-07 -1.70879069d-10  0.00000000d+00 -1.45579970d+03  3.43525498d+00
    298.150   820.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6558.289
  1.29434497d+05 -1.64609315d+03  1.11106993d+01 -1.97361897d-02  2.91069831d-05
 -2.16329158d-08  6.50775144d-12  0.00000000d+00  7.15997736d+03 -5.67135375d+01
Sr(b)               Strontium Beta Crystal. Alcock, JPCRD 1992.
 1 SRD 92 SR  1.00    0.00    0.00    0.00    0.00 2     87.62000          0.000
    820.000  1041.000 2  0.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0          6558.289
  3.19032631d+00  4.83732655d-04  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -8.56099126d+02 -1.15723843d+01
Sr(l)               Strontium  Liquid. Alcock, JPCRD 1992.
 1 SRD 92 SR  1.00    0.00    0.00    0.00    0.00 3     87.62000          0.000
   1041.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6558.289
  4.45005178d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -9.43194037d+02 -1.88970339d+01
```

TABLE VI. - Continued.

```
Ta(cr)              Tantalum Crystal. JANAF Dec. 1972.
 3 J12/72 TA  1.00     0.00     0.00     0.00     0.00 1     180.94790          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5681.000
  1.51994043d+04 -4.92714147d+02  6.85560442d+00 -1.36662520d-02  2.56146572d-05
 -2.23563067d-08  7.38982999d-12  0.00000000d+00  1.23607677d+03 -3.25207475d+01
   1000.000  2000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5681.000
 -1.00139000d+08  4.69301495d+05 -8.98629582d+02  9.07878690d-01 -5.04024569d-04
  1.46307763d-07 -1.73347779d-11  0.00000000d+00 -2.76010352d+06  5.93530091d+03
   2000.000  3258.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5681.000
  1.28624807d+05  5.62481594d+02 -2.26408665d+00  6.79174712d-03 -2.94897588d-06
  5.06066667d-10 -8.39124813d-15  0.00000000d+00 -1.57096759d+03  1.97998287d+01
Ta(l)               Tantalum Liquid. JANAF Dec. 1972.
 1 J12/72 TA  1.00     0.00     0.00     0.00     0.00 2     180.94790          0.000
   3258.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5681.000
  5.03216666d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -7.43604205d+02 -2.59736267d+01
Th(a)               Thorium Alpha Crystal. CODATA 1989. p239.
 1 CODA89 TH  1.00     0.00     0.00     0.00     0.00 1     232.03810          0.000
    200.000  1650.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6350.000
 -1.45324716d+04  1.50522244d+02  2.27069476d+00  2.05861436d-03 -9.21661476d-07
  4.31679639d-10 -7.95065689d-14  0.00000000d+00 -1.66753636d+03 -6.85717696d+00
Th(b)               Thorium Beta Crystal. CODATA 1989. p239.
 1 CODA89 TH  1.00     0.00     0.00     0.00     0.00 2     232.03810          0.000
   1650.000  2023.000 6 -2.0 -1.0  0.0  1.0  2.0  3.0  0.0  0.0          6350.000
 -4.48357108d+06  1.19995994d+04 -1.09903656d+01  8.36771354d-03 -1.87025534d-06
  2.02506449d-10  0.00000000d+00  0.00000000d+00 -7.67962666d+04  8.90805067d+01
Th(l)               Thorium Liquid. CODATA 1989. p239.
 1 CODA89 TH  1.00     0.00     0.00     0.00     0.00 3     232.03810          0.000
   2023.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6350.000
  5.53249680d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.19182510d+03 -2.76007193d+01
Ti(a)               Titanium Alpha Crystal. CODATA 1989, p230.
 2 CODA89 TI  1.00     0.00     0.00     0.00     0.00 1      47.88000          0.000
    200.000   900.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4824.000
  3.59859866d+04 -8.27230199d+02  7.68909544d+00 -1.14396776d-02  1.39210439d-05
 -4.69104858d-09 -9.85215763d-13  0.00000000d+00  2.93661954d+03 -3.98513673d+01
    900.000  1156.000 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4824.000
 -2.87623571d+06  4.57315324d+01 -7.69238133d-02  3.79991938d-05  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.03802387d+04 -2.51627018d+02
Ti(b)               Titanium Beta Crystal. CODATA 1989, p230.
 1 CODA89 TI  1.00     0.00     0.00     0.00     0.00 2      47.88000          0.000
   1156.000  1944.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4824.000
 -1.62589190d+06  6.28107830d+03 -8.06015068d+00  9.34863930d-03 -3.77346316d-06
  1.06605590d-09 -1.13836962d-13  0.00000000d+00 -3.75203373d+04  6.17294291d+01
Ti(l)               Titanium Liquid. CODATA 1989, p230.
 1 CODA89 TI  1.00     0.00     0.00     0.00     0.00 3      47.88000          0.000
   1944.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4824.000
  5.62871414d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -2.37735466d+03 -3.07944348d+01
U(a)                Uranium Alpha Crystal. CODATA, 1989, p234.
 1 CODA89 U   1.00     0.00     0.00     0.00     0.00 1     238.02890          0.000
    200.000   942.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6364.000
 -1.54089926d+04  2.31880168d+02  1.22794467d+00  7.13611700d-03 -1.01803851d-05
  1.13688431d-08 -3.66936726d-12  0.00000000d+00 -1.98692173d+03 -2.03597510d+00
U(b)                Uranium Beta Crystal. CODATA, 1989, p234.
 1 CODA89 U   1.00     0.00     0.00     0.00     0.00 2     238.02890          0.000
    942.000  1049.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6364.000
  5.09951879d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.67208015d+03 -2.37803012d+01
U(c)                Uranium Gamma Crystal. CODATA, 1989, p234.
 1 CODA89 U   1.00     0.00     0.00     0.00     0.00 3     238.02890          0.000
   1049.000  1408.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          6364.000
  4.60640495d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -5.85918728d+02 -1.98080904d+01
U(l)                Uranium Liquid. CODATA, 1989, p234.
 1 CODA89 U   1.00     0.00     0.00     0.00     0.00 4     238.02890          0.000
   1408.000  4000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6364.000
 -9.46457587d+04  8.52609383d+02  4.20918445d+00  8.40688688d-04 -1.30945011d-07
  1.98486896d-11 -1.23147704d-15  0.00000000d+00 -5.95605859d+03 -1.66728821d+01
```

TABLE VI. - Concluded.

```
V(cr)                Vanadium Crystal. JANAF Jun.1973.
 3 J 6/73 V   1.00    0.00    0.00    0.00    0.00 1     50.94150          0.000
    200.000   600.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4640.000
 2.845123688D+05-5.094928900D+03 3.715015820D+01-1.176029844D-01 2.255821258D-04
-2.260640255D-07 9.289586240D-11 0.000000000D+00 2.254376406D+04-1.968240153D+02
    600.000  1400.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4640.000
 1.371575505D+06-7.844377820D+03 2.094284102D+01-2.054425914D-02 1.322315464D-05
-4.038278610D-09 5.080950050D-13 0.000000000D+00 4.373041330D+04-1.292226628D+02
   1400.000  2190.000 5 -2.0 -1.0  0.0  1.0  2.0  0.0  0.0  0.0          4640.000
 3.779718910D+07-9.218606100D+04 8.718887310D+01-3.381969540D-02 5.503768190D-06
 0.000000000D+00 0.000000000D+00 0.000000000D+00 6.047333670D+05-6.371308970D+02
V(l)                 Vanadium Liquid. JANAF Jun.1973.
 1 J 6/73 V   1.00    0.00    0.00    0.00    0.00 2     50.94150          0.000
   2190.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4640.000
 5.557032224D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-1.899616476D+03-3.070531504D+01
W(cr)                Tungsten Crystal. JANAF Jun.1966.
 4 J 6/66 W   1.00    0.00    0.00    0.00    0.00 1    183.85000          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4973.000
-6.824541410D+03-2.254249211D+02 4.976604670D+00-6.926436530D-03 1.202273015D-05
-9.344133730D-09 2.818887188D-12 0.000000000D+00-3.510623140D+00-2.361335021D+01
   1000.000  2600.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          4973.000
 5.529261560D+05-2.041159288D+03 5.870343020D+00-1.920319341D-03 1.067479901D-06
-2.354712350D-10 2.160307682D-14 0.000000000D+00 1.163613307D+04-3.318832690D+01
   2600.000  3200.000 5 -2.0  0.0  1.0  2.0  3.0  0.0  0.0  0.0          4973.000
-1.793299468D+08 2.336596781D+02-1.612066051D-01 4.143215950D-05-3.632045330D-09
 0.000000000D+00 0.000000000D+00 0.000000000D+00-3.246304260D+05-1.539018587D+03
   3200.000  3680.000 4 -2.0  0.0  1.0  2.0  0.0  0.0  0.0  0.0          4973.000
-1.603114678D+08 1.245822334D+02-5.788356480D-02 7.991884200D-06 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00-2.286082028D+05-8.568272780D+02
W(l)                 Tungsten Liquid. JANAF Jun.1966.
 1 J 6/66 W   1.00    0.00    0.00    0.00    0.00 2    183.85000          0.000
   3680.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          4973.000
 4.277341659D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00 0.000000000D+00
 0.000000000D+00 0.000000000D+00 0.000000000D+00 2.754025587D+03-2.086488631D+01
Xe                   Xenon. NSRDS-NBS 35, 1971. FIXEDN = 5 with FILL.
 3 L12/91 XE  1.00    0.00    0.00    0.00    0.00 0    131.29000          0.000
    200.000  1000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
  6.60802392d-03 -9.53610408d-05  2.50000053d+00 -1.49716621d-09  2.21314503d-12
 -1.64711078d-15  4.84969606d-19  0.00000000d+00 -7.45374544d+02  6.16441696d+00
   1000.000  6000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
  1.10419906d+03 -3.31828724d+00  2.50387762d+00 -2.25191164d-06  6.86935273d-10
 -1.04849430d-13  6.29438941d-18  0.00000000d+00 -7.24304574d+02  6.13680991d+00
   6000.000 20000.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          6197.428
  1.12165502d+09 -4.37739937d+05  3.09526795d+01  9.40975389d-03 -1.78186678d-06
  1.11007713d-10 -2.27006881d-15  0.00000000d+00  3.75008887d+06 -3.30380169d+02
Zn(cr)               Zinc Crystal. CODATA 1989, p221.
 1 CODA89 ZN  1.00    0.00    0.00    0.00    0.00 1     65.39000          0.000
    200.000   692.730 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5657.000
  3.70205418d+05 -5.91543178d+03  3.95947111d+01 -1.14372581d-01  1.93434497d-04
 -1.67536697d-07  6.07811933d-11  0.00000000d+00  2.68171703d+04 -2.11483251d+02
Zn(l)                Zinc Liquid. CODATA 1989, p221.
 1 CODA89 ZN  1.00    0.00    0.00    0.00    0.00 2     65.39000          0.000
    692.730  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5657.000
  3.77653043d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -4.31734581d+02 -1.56707793d+01
Zr(a)                Zirconium Alpha Crystal.  JANAF Jun.1979.
 1 J 6/79 ZR  1.00    0.00    0.00    0.00    0.00 1     91.22400          0.000
    200.000  1135.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5497.000
 -1.15369959d+04  2.62620863d+01  2.93205442d+00  5.74336614d-04 -7.65172100d-07
  1.59720357d-09 -6.09713165d-13  0.00000000d+00 -1.08415351d+03 -1.21577680d+01
Zr(b)                Zirconium Beta Crystal.  JANAF Jun.1979.
 1 J 6/79 ZR  1.00    0.00    0.00    0.00    0.00 2     91.22400          0.000
   1135.000  2125.000 7 -2.0 -1.0  0.0  1.0  2.0  3.0  4.0  0.0          5497.000
 -1.06298870d+06  4.26326338d+03 -3.15805844d+00  5.00530900d-03 -2.35697540d-06
  7.69131718d-10 -8.13924831d-14  0.00000000d+00 -2.63535516d+04  3.06135955d+01
Zr(l)                Zirconium Liquid.  JANAF Jun.1979.
 1 J 6/79 ZR  1.00    0.00    0.00    0.00    0.00 3     91.22400          0.000
   2125.000  6000.000 1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0          5497.000
  5.03216666d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00  0.00000000d+00
  0.00000000d+00  0.00000000d+00  0.00000000d+00 -1.10079587d+03 -2.54806600d+01
```

TABLE VII. - FORMAT FOR THE 7-CONSTANT POLYNOMIAL FORM (OLD FORMAT)

Record	Contents	Format	Columns
1	Species name	A12	1-12
	Reference/date code	A6	19-24
	Chemical formula, symbols and numbers	4(A2,F3.0)	25-44
	"G" for gaseous species, "C" for condensed	A1	45
	Temperature range	2F10.3	46-65
	Molecular weight	F13.5	66-78
	Integer 1	I1	80
2	Coefficients a_i (i = 1,5) in eq. (1) for $T \geq 1000$ K	5E15.8	1-75
	Integer 2	I1	80
3	Coefficients b_1 and b_2 in eqs. (2) and (3) for $T \geq 1000$ K	2E15.8	1-30
	Coefficients a_i (i = 1,3) in eq. (1) for $T \leq 1000$ K	3E15.8	31-75
	Integer 3	I1	80
4	Coefficients a_i (i = 4,5) in eq. (1) for $T \leq 1000$ K	2E15.8	1-30
	Coefficients b_i and b_2 in eqs. (2) and (3) for $T \leq 1000$ K	2E15.8	31-60
	H^o (298.15)/R, K	E15.8	61-75
	Integer 4	I1	80

Example:

```
Cl2                 TPIS89CL 2.   0.   0.   0.G   200.000  6000.000      70.90540 1
 4.74727508e+00-4.88581710e-04 2.68444871e-07-2.43476083e-11-1.03683148e-15    2
-1.51101862e+03-3.44551305e-01 2.73638114e+00 7.83525700e-03-1.45104963e-05    3
 1.25730834e-08-4.13247145e-12-1.05880114e+03 9.44555879e+00 0.00000000e+00    4
```

Empirical equations for above example (from eqs. (1) to (3)):

Heat capacity: $$\frac{C_p^o}{R} = a_1 + a_2T + a_3T^2 + a_4T^3 + a_5T^4$$

Enthalpy: $$\frac{H^o(T)}{RT} = a_1 + a_2\frac{T}{2} + a_3\frac{T^2}{3} + a_4\frac{T^3}{4} + a_5\frac{T^4}{5} + \frac{b_1}{T}$$

Entropy: $$\frac{S^o(T)}{R} = a_1 \ln T + a_2T + a_3\frac{T^2}{2} + a_4\frac{T^3}{3} + a_5\frac{T^4}{4} + b_2$$

TABLE VIII. - COEFFICIENTS FOR THE 7-CONSTANT FUNCTIONAL FORM

```
Ag(cr)              CODA89AG 1.    0.    0.    0.C    200.000  1235.080     107.86820 1
 2.24016573e+00 1.97435560e-03-8.70808062e-07 2.18224028e-10 0.00000000e+00     2
-6.80620724e+02-8.04463718e+00 2.22530515e+00 5.62247272e-03-1.36678356e-05     3
 1.54871758e-08-6.10518075e-12-8.20344640e+02-8.75494264e+00 0.00000000e+00     4
Ag(l)               CODA89AG 1.    0.    0.    0.C   1235.080  6000.000     107.86820 1
 4.01707377e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-4.66318420e+02-1.77117176e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Al(cr)              CODA89AL 1.    0.    0.    0.C    200.000   933.610      26.98154 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 0.00000000e+00 0.00000000e+00 1.01040191e+00 1.20769743e-02-2.62083556e-05     3
 2.64282413e-08-9.01916513e-12-6.54454196e+02-5.00471254e+00 0.00000000e+00     4
Al(l)               CODA89AL 1.    0.    0.    0.C    933.610  6000.000      26.98154 1
 3.81862551e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-9.49651808e+01-1.75229704e+01 3.81862551e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00-9.49651808e+01-1.75229704e+01 0.00000000e+00     4
Ar                  L 6/88AR 1.    0.    0.    0.G    200.000  6000.000      39.94800 1
 2.50000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-7.45375000e+02 4.37967491e+00 2.50000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00-7.45375000e+02 4.37967491e+00 0.00000000e+00     4
B(b)                J6/83 B  1.    0.    0.    0.C    200.000  2350.000      10.81100 1
 1.83494094e+00 1.79198702e-03-7.97879498e-07 2.02764512e-10-1.92028345e-14     2
-7.83202899e+02-1.06433298e+01-1.15931693e+00 1.13777145e-02-1.06985988e-05     3
 2.76106443e-09 7.31746996e-13-7.13339210e+01 4.36439895e+00 0.00000000e+00     4
B(l)                J6/83 B  1.    0.    0.    0.C   2350.000  6000.000      10.81100 1
 3.81862551e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 3.36099275e+03-2.07326473e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Ba(cr)              SRD 92BA 1.    0.    0.    0.C    298.150  1000.000     137.32700 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 0.00000000e+00 0.00000000e+00 2.77334443e+00 2.03752236e-03 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00-9.17433810e+02-8.90970626e+00 0.00000000e+00     4
Ba(l)               SRD 92BA 1.    0.    0.    0.C   1000.000  6000.000     137.32700 1
 4.81086679e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-9.92062381e+02-2.00027571e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Be(a)               SRD 92BE 1.    0.    0.    0.C    298.150  1543.000       9.01218 1
 8.06036468e-01 5.37325946e-03-4.86241757e-06 2.39834017e-09-4.37186552e-13     2
-4.10525129e+02-4.79961716e+00-1.34774902e+00 1.92340834e-02-3.54163423e-05     3
 3.08895143e-08-1.00814744e-11-1.96446005e+02 4.40835822e+00 0.00000000e+00     4
Be(b)               SRD 92BE 1.    0.    0.    0.C   1543.000  1563.000       9.01218 1
 3.60815009e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-8.52229192e+02-2.00291024e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Be(l)               SRD 92BE 1.    0.    0.    0.C   1563.000  6000.000       9.01218 1
 3.54560882e+00 0.00000000e-00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 2.07475580e+02-1.89534126e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Br2(cr)             TPIS89BR 2.    0.    0.    0.C    200.000   265.900     159.80800 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 0.00000000e+00 0.00000000e+00 9.12545994e+00-8.26160881e-02 6.99861517e-04     3
-2.40843064e-06 3.21106016e-09-3.30408820e+03-3.01727996e+01 0.00000000e+00     4
Br2(l)              TPIS89BR 2.    0.    0.    0.C    265.900   332.503     159.80800 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 0.00000000e+00 0.00000000e+00 1.04252937e+01 1.11181227e-01-1.06856988e-03     3
 3.25976572e-06-3.27490398e-09-3.50620403e+03-4.90757083e+01 0.00000000e+00     4
Br2(l)              TPIS89BR 2.    0.    0.    0.C    332.503  6000.000     159.80800 1
 9.05669727e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-2.69988017e+03-3.32936281e+01 9.05669727e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00-2.69988017e+03-3.32936281e+01 0.00000000e+00     4
C(gr)               X 4/83C  1.    0.    0.    0.C    200.000  5000.000      12.01100 1
 1.45571829e+00 1.71702216e-03-6.97562786e-07 1.35277032e-10-9.67590652e-15     2
-6.95138814e+02-8.52583033e+00-3.10872072e-01 4.40353686e-03 1.90394118e-06     3
-6.38546966e-09 2.98964248e-12-1.08650794e+02 1.11382953e+00 0.00000000e+00     4
```

TABLE VIII. - Continued.

```
Ca(a)              SRD 92CA 1.   0.   0.   0.C   298.150   716.000     40.07800 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.03325649e+00-1.41800064e-03 7.24487574e-06    3
-6.68790594e-09 2.49903889e-12-8.93310508e+02-1.20114288e+01 0.00000000e+00    4
Ca(b)              SRD 92CA 1.   0.   0.   0.C   716.000  1115.000     40.07800 1
 5.70111768e+00-5.81056490e-03 4.02212518e-06 0.00000000e+00 0.00000000e+00    2
-1.51676361e+03-2.60758134e+01 5.70111768e+00-5.81056490e-03 4.02212518e-06    3
 0.00000000e+00 0.00000000e+00-1.51676361e+03-2.60758134e+01 0.00000000e+00    4
Ca(l)              SRD 92CA 1.   0.   0.   0.C  1115.000  6000.000     40.07800 1
 4.57032345e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-9.82243308e+02-2.11988643e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Cd(cr)             CODA89CD 1.   0.   0.   0.C   100.000   594.258    112.41100 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.74321471e+00-1.31863801e-02 6.92307461e-05    3
-1.34215659e-07 9.12182153e-11-9.19406477e+02-1.32372861e+01 0.00000000e+00    4
Cd(l)              CODA89CD 1.   0.   0.   0.C   594.258  6000.000    112.41100 1
 3.59612292e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-4.21081626e+02-1.32280192e+01 3.59612292e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-4.21081626e+02-1.32280192e+01 0.00000000e+00    4
Cl2                TPIS89CL 2.   0.   0.   0.G   200.000  6000.000     70.90540 1
 4.74727508e+00-4.88581710e-04 2.68444871e-07-2.43476083e-11-1.03683148e-15    2
-1.51101862e+03-3.44551305e-01 2.73638114e+00 7.83525700e-03-1.45104963e-05    3
 1.25730834e-08-4.13247145e-12-1.05880114e+03 9.44555879e+00 0.00000000e+00    4
Co(a)              J 9/67CO 1.   0.   0.   0.C   200.000   700.100     58.93320 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 1.17055166e+00 1.28077744e-02-3.49342597e-05    3
 4.90692092e-08-2.54738201e-11-6.94569342e+02-5.70222736e+00 0.00000000e+00    4
Co(b)              J 9/67CO 1.   0.   0.   0.C   700.100  1394.000     58.93320 1
-2.24784527e+02 7.72645140e-01-9.73106908e-04 5.40893248e-07-1.11198553e-10    2
 5.24697778e+04 1.12212928e+03 1.84717359e+00 4.25443128e-03-3.94671909e-06    3
 2.29351393e-09 0.00000000e+00-6.09742067e+02-7.84282629e+00 0.00000000e+00    4
Co(b)              J 9/67CO 1.   0.   0.   0.C  1394.000  1768.000     58.93320 1
 1.23045928e+04-3.07370762e+01 2.87553057e-02-1.19356934e-05 1.85463555e-09    2
-3.93275240e+06-6.51398350e+04 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Co(l)              J 9/67CO 1.   0.   0.   0.C  1768.000  6000.000     58.93320 1
 4.87112289e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-1.69849531e+02-2.44787531e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Cr(cr)             J 6/73CR 1.   0.   0.   0.C   200.000   311.500     51.99610 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 7.84826024e+00-1.16276020e-01 8.12369251e-04    3
-2.30807086e-06 2.35328142e-09-8.98013946e+02-2.75733139e+01 0.00000000e+00    4
Cr(cr)             J 6/73CR 1.   0.   0.   0.C   311.500  2130.000     51.99610 1
 4.59782637e+00-4.81791132e-03 5.84129754e-06-2.07036847e-09 2.82102268e-13    2
-1.31489668e+03-2.24454748e+01 1.82863471e+00 4.19562267e-03-2.82735082e-06    3
-9.15990578e-10 1.55203040e-12-7.05502663e+02-8.69806103e+00 0.00000000e+00    4
Cr(l)              J 6/73CR 1.   0.   0.   0.C  2130.000  6000.000     51.99610 1
 4.73028477e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 5.75359221e+02-2.45318309e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Cs(cr)             CODA89CS 1.   0.   0.   0.C   100.000   301.590    132.90543 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.31157194e+00-9.67974793e-03 1.19926576e-04    3
-5.20608084e-07 8.33415927e-10-9.80844435e+02-8.10866871e+00 0.00000000e+00    4
Cs(l)              CODA89CS 1.   0.   0.   0.C   301.590  2000.000    132.90543 1
 5.11512955e+00-3.83970291e-03 2.01555257e-06 3.64202599e-10-5.43974501e-14    2
-1.13841767e+03-1.70567624e+01 3.20358130e+00 6.53560206e-03-1.88609302e-05    3
 1.88262490e-08-6.10371782e-12-8.61341855e+02-8.43100388e+00 0.00000000e+00    4
Cu(cr)             CODA89CU 1.   0.   0.   0.C   200.000  1358.000     63.54600 1
 3.42008910e+00-1.61201394e-03 3.05145917e-06-2.11162788e-09 6.99858397e-13    2
-9.90295636e+02-1.51932294e+01 1.76672074e+00 7.34699432e-03-1.54712960e-05    3
 1.50539591e-08-5.24861335e-12-7.43882087e+02-7.70454044e+00 0.00000000e+00    4
Cu(l)              CODA89CU 1.   0.   0.   0.C  1358.000  6000.000     63.54600 1
 3.94491076e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-2.10634669e+02-1.83585676e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
```

TABLE VIII. - Continued.

```
D2                  TPIS89D  2.   0.   0.   0.G   200.000  6000.000      4.02820 1
 2.73068929e+00 1.48004781e-03-4.79314848e-07 7.89496274e-11-4.88380823e-15    2
-7.95267504e+02 1.64266094e+00 3.49546974e+00 2.58348159e-04-1.31762502e-06    3
 2.42912018e-09-1.05982498e-12-1.04631580e+03-2.51905534e+00 0.00000000e+00    4
ELECTRON GAS        L 6/88E  1.   0.   0.   0.G   200.000  6000.000      0.00055 1
 2.50000000e+00 9.69530988e-14-5.49145356e-17 1.20090954e-20-8.89801180e-25    2
-7.45375000e+02-1.17208127e+01 2.50000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-7.45375000e+02-1.17208127e+01 0.00000000e+00    4
F2                  TPIS89F  2.   0.   0.   0.G   200.000  6000.000     37.99681 1
 3.86166219e+00 7.88367679e-04-1.81982940e-07-9.17436560e-12 2.65193472e-15    2
-1.23238655e+03 2.04119869e+00 3.20832415e+00 1.25919179e-03 3.89747979e-06    3
-7.22184984e-09 3.31837862e-12-1.03425794e+03 5.61903603e+00 0.00000000e+00    4
Fe(a)               J 3/78FE 1.   0.   0.   0.C   200.000  1042.000     55.84700 1
 4.69080173e+03-9.90659991e+00 2.69427446e-03 5.54445321e-06-3.01659823e-09    2
-1.41547586e+06-2.49294387e+04 2.41337476e+00-1.57780744e-03 2.14701339e-05    3
-3.80171438e-08 2.20426984e-11-7.74380998e+02-1.06560296e+01 0.00000000e+00    4
Fe(a)               J 3/78FE 1.   0.   0.   0.C  1042.000  1184.000     55.84700 1
 6.59678809e+02-1.14058217e+00 4.96306997e-04 0.00000000e+00 0.00000000e+00    2
-2.52106802e+05-3.65665236e+03 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Fe(c)               J 3/78FE 1.   0.   0.   0.C  1184.000  1665.000     55.84700 1
 6.10109990e+01-1.60945061e-01 1.68369493e-04-7.74563702e-08 1.33091290e-11    2
-1.65335454e+04-3.13710668e+02 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Fe(d)               J 3/78FE 1.   0.   0.   0.C  1665.000  1809.000     55.84700 1
-4.35904698e+02 7.68489448e-01-4.46898892e-04 8.67070913e-08 0.00000000e+00    2
 1.87925534e+05 2.45057619e+03 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Fe(l)               J 3/78FE 1.   0.   0.   0.C  1809.000  6000.000     55.84700 1
 5.53538332e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-1.27428941e+03-2.94772271e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Ge(cr)              TPIS91GE 1.   0.   0.   0.C   200.000  1211.400     72.61000 1
-1.11030403e+04 2.88119900e+00 3.68813487e-04 0.00000000e+00 0.00000000e+00    2
-9.23515621e+02-1.28754049e+01-2.29964192e+03-1.31267063e+02 3.26104791e+00    3
-5.69555985e-05 1.68383845e-07-2.31043788e+02-1.52845964e+01 0.00000000e+00    4
Ge(l)               TPIS91GE 1.   0.   0.   0.C  1211.400  6000.000     72.61000 1
 3.31949808e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 3.27896209e+03-1.18601086e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
H2                  TPIS78H  2.   0.   0.   0.G   200.000  6000.000      2.01588 1
 2.93286579e+00 8.26607967e-04-1.46402335e-07 1.54100359e-11-6.88804432e-16    2
-8.13065597e+02-1.02432887e+00 2.34433112e+00 7.98052075e-03-1.94781510e-05    3
 2.01572094e-08-7.37611761e-12-9.17935173e+02 6.83010238e-01 0.00000000e+00    4
He                  L10/90HE 1.   0.   0.   0.G   200.000  6000.000      4.00260 1
 2.50000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-7.45375000e+02 9.28723974e-01 2.50000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-7.45375000e+02 9.28723974e-01 0.00000000e+00    4
Hg(cr)              J12/61HG 1.   0.   0.   0.C   200.000   234.290    200.59000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 2.43103385e+00 4.24646658e-03 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-1.17886806e+03-7.11248114e+00 0.00000000e+00    4
Hg(l)               J12/61HG 1.   0.   0.   0.C   234.290  2000.000    200.59000 1
 3.03653487e+00 3.16006666e-04 6.43901172e-08-2.92306991e-11 4.86860918e-15    2
-8.88170502e+02-8.17243018e+00 3.79685248e+00-2.09026109e-03 2.22267107e-06    3
-1.08605655e-10-4.28087248e-13-1.05834631e+03-1.19626936e+01 0.00000000e+00    4
I2(cr)              TPIS89I  2.   0.   0.   0.C   200.000   386.750    253.80894 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00-1.05757713e+01 2.26905653e-01-1.12461645e-03    3
 2.41678452e-06-1.84901377e-09-8.99721615e+02 3.88598964e+01 0.00000000e+00    4
I2(l)               TPIS89I  2.   0.   0.   0.C   386.750  6000.000    253.80894 1
 9.56821268e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-1.20451948e+03-3.63733927e+01 9.56821268e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-1.20451948e+03-3.63733927e+01 0.00000000e+00    4
```

TABLE VIII. - Continued.

```
K(cr)                CODA89K  1.    0.    0.    0.C    200.000    336.860      39.09830 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00-2.08951123e+00 6.16320193e-02-2.40731903e-04    3
 3.27255823e-07 0.00000000e+00-6.36098059e+02 9.11736910e+00 0.00000000e+00    4
K(l)                 CODA89K  1.    0.    0.    0.C    336.860   2200.000      39.09830 1
 4.64954931e+00-2.79174106e-03 1.80836337e-06 3.41244868e-11-4.48782184e-15    2
-1.01467797e+03-1.71767347e+01 4.22910563e+00-7.06885543e-04-2.12965848e-06    3
 3.36227270e-09-1.05902602e-12-9.45117514e+02-1.52340054e+01 0.00000000e+00    4
Kr                   L10/90KR 1.    0.    0.    0.G    200.000   6000.000      83.80000 1
 2.50000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-7.45375000e+02 5.49095651e+00 2.50000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-7.45375000e+02 5.49095651e+00 0.00000000e+00    4
Li(cr)               TPIS82LI 1.    0.    0.    0.C    200.000    453.690       6.94100 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 6.10909942e-01 1.41041217e-02-1.74958170e-05    3
-3.33741023e-08 7.76629665e-11-6.25121208e+02-3.26449947e+00 0.00000000e+00    4
Li(l)                TPIS82LI 1.    0.    0.    0.C    453.690   3000.000       6.94100 1
 3.89314223e+00-8.42787696e-04 4.45546328e-07-3.65337454e-11 3.89279220e-15    2
-8.22019556e+02-1.78183077e+01 4.62266638e+00-4.06164205e-03 5.91666170e-06    3
-4.24960085e-09 1.23517473e-12-9.58811267e+02-2.12778501e+01 0.00000000e+00    4
Mg(cr)               SRD 92MG 1.    0.    0.    0.C    298.150    923.000      24.30500 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 1.47884944e+00 9.27430526e-03-1.95050788e-05    3
 1.98215527e-08-7.04927374e-12-7.16649299e+02-6.57222695e+00 0.00000000e+00    4
Mg(l)                SRD 92MG 1.    0.    0.    0.C    923.000   6000.000      24.30500 1
 4.12531827e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-6.58934341e+02-1.93786894e+01 4.12531827e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-6.58934341e+02-1.93786894e+01 0.00000000e+00    4
Mn(a)                J 9/67MN 1.    0.    0.    0.C    200.000    980.000      54.93805 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 1.37061288e+00 1.00045828e-02-1.80197969e-05    3
 1.73642703e-08-6.17921338e-12-7.25514346e+02-6.28244690e+00 0.00000000e+00    4
Mn(b)                J 9/67MN 1.    0.    0.    0.C    980.000   1361.000      54.93805 1
-3.40535059e+00 2.57015025e-02-3.18989086e-05 1.78851041e-08-3.74830537e-12    2
 4.79690227e+02 1.74432225e+01 3.77430212e+00 7.59739847e-04 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-1.14043577e+03-1.81351282e+01 0.00000000e+00    4
Mn(c)                J 9/67MN 1.    0.    0.    0.C   1361.000   1412.000      54.93805 1
-4.35636509e+00 1.28138734e-02-4.26503238e-06 0.00000000e+00 0.00000000e+00    2
 2.58415992e+03 2.82542050e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Mn(d)                J 9/67MN 1.    0.    0.    0.C   1412.000   1519.000      54.93805 1
-1.42048979e+00 8.45822323e-03-2.54935141e-06 0.00000000e+00 0.00000000e+00    2
 1.39674430e+03 1.15609126e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Mn(l)                J 9/67MN 1.    0.    0.    0.C   1519.000   6000.000      54.93805 1
 5.53538332e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-9.39295361e+02-2.85348401e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Mo(cr)               J 3/78MO 1.    0.    0.    0.C    200.000   2896.000      95.94000 1
 5.38432823e+00-6.01622180e-03 6.01482526e-06-2.32962338e-09 3.52007808e-13    2
-1.62657220e+03-2.62488891e+01 1.32884141e+00 9.82553689e-03-2.10929825e-05    3
 2.09509528e-08-7.60703244e-12-6.84364789e+02-6.29286538e+00 0.00000000e+00    4
Mo(l)                J 3/78MO 1.    0.    0.    0.C   2896.000   6000.000      95.94000 1
 4.52894999e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 2.02140667e+03-2.28074752e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
N2                   TPIS78N  2.    0.    0.    0.G    200.000   6000.000      28.01348 1
 2.95257626e+00 1.39690057e-03-4.92631691e-07 7.86010367e-11-4.60755321e-15    2
-9.23948645e+02 5.87189252e+00 3.53100528e+00-1.23660987e-04-5.02999437e-07    3
 2.43530612e-09-1.40881235e-12-1.04697628e+03 2.96747468e+00 0.00000000e+00    4
Na(cr)               CODA89NA 1.    0.    0.    0.C    200.000    371.010      22.98977 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 1.23954242e+00 2.00562189e-02-7.36418252e-05    3
 1.02712149e-07 0.00000000e+00-8.13320916e+02-4.50651391e+00 0.00000000e+00    4
Na(l)                CODA89NA 1.    0.    0.    0.C    371.010   2300.000      22.98977 1
 4.59858543e+00-2.42459406e-03 1.32453794e-06-4.12375317e-11 6.40167081e-15    2
-9.98535534e+02-1.86257127e+01 4.32382419e+00-1.41145451e-03-1.31068846e-07    3
 9.17457679e-10-2.35065070e-13-9.36522263e+02-1.72722638e+01 0.00000000e+00    4
```

TABLE VIII. - Continued.

```
Nb(cr)              J12/73NB 1.   0.   0.   0.C   200.000  2750.000     92.90638 1
 4.21499986e+00-2.90686491e-03 3.12396990e-06-1.27909749e-09 2.09229406e-13    2
-1.28682102e+03-1.91976179e+01 1.91200557e+00 6.92396275e-03-1.56081201e-05    3
 1.61804090e-08-6.04602043e-12-7.69037196e+02-8.00990261e+00 0.00000000e+00    4
Nb(l)               J12/73NB 1.   0.   0.   0.C  2750.000  6000.000     92.90638 1
 4.02573333e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 1.42704047e+03-1.85790552e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Ne                  L10/90NE 1.   0.   0.   0.G   200.000  6000.000     20.17970 1
 2.50000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-7.45375000e+02 3.35532272e+00 2.50000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-7.45375000e+02 3.35532272e+00 0.00000000e+00    4
Ni(cr)              J12/76NI 1.   0.   0.   0.C   200.000   631.000     58.69000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.92097614e+00-2.34184719e-02 1.34230145e-04    3
-2.75971639e-07 1.98530861e-10-8.62387206e+02-1.56856186e+01 0.00000000e+00    4
Ni(cr)              J12/76NI 1.   0.   0.   0.C   631.000  1728.000     58.69000 1
 9.58208572e+00-1.78945122e-02 1.97185112e-05-9.11957952e-09 1.58728609e-12    2
-2.61782185e+03-4.74612393e+01 4.85484877e+02-2.30395380e+00 4.10622634e-03    3
-3.23350101e-06 9.49617381e-10-8.11709085e+04-2.25428960e+03 0.00000000e+00    4
Ni(l)               J12/76NI 1.   0.   0.   0.C  1728.000  6000.000     58.69000 1
 4.67989094e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-3.22238346e+02-2.33517797e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
O2                  TPIS89O  2.   0.   0.   0.G   200.000  6000.000     31.99880 1
 3.66096083e+00 6.56365523e-04-1.41149485e-07 2.05797658e-11-1.29913248e-15    2
-1.21597725e+03 3.41536184e+00 3.78245636e+00-2.99673415e-03 9.84730200e-06    3
-9.68129508e-09 3.24372836e-12-1.06394356e+03 3.65767573e+00 0.00000000e+00    4
P(cr)               TPIS89P  1.   0.   0.   0.C   195.400   317.300     30.97376 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 8.02469681e-01 1.85779347e-02-8.34080748e-05    3
 2.11104876e-07-2.09658894e-10-6.46362570e+02-2.91281027e+00 0.00000000e+00    4
P(l)                TPIS89P  1.   0.   0.   0.C   317.300  6000.000     30.97376 1
 3.14149601e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-8.62148564e+02-1.27227472e+01 3.14149601e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-8.62148564e+02-1.27227472e+01 0.00000000e+00    4
Pb(cr)              TPIS91PB 1.   0.   0.   0.C   200.000   600.650    207.20000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.36014248e+00-4.31525514e-03 2.10404411e-05    3
-3.35897357e-08 1.91850988e-11-9.38593007e+02-1.07408687e+01 0.00000000e+00    4
Pb(l)               TPIS91PB 1.   0.   0.   0.C   600.650  3600.000    207.20000 1
 4.18191355e+00-9.84150979e-04 3.55339809e-07-1.75808349e-11-3.23884419e-15    2
-7.56065769e+02-1.51099545e+01 3.40679935e+00 2.03221927e-03-4.17417470e-06    3
 3.08397022e-09-8.16531438e-13-5.92027769e+02-1.13377955e+01 0.00000000e+00    4
Rb(cr)              CODA89RB 1.   0.   0.   0.C   100.000   312.470     85.46780 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.55260604e+00-1.61048104e-02 1.70845564e-04    3
-6.79689051e-07 9.88583047e-10-9.75829392e+02-9.74695812e+00 0.00000000e+00    4
Rb(l)               CODA89RB 1.   0.   0.   0.C   312.470  2100.000     85.46780 1
 3.26193993e+00 1.47642720e-03-2.00176211e-06 1.00852921e-09 4.16113662e-14    2
-7.30884458e+02-8.79096805e+00 5.46059088e+00-1.00894208e-02 2.07999263e-05    3
-1.88781234e-08 6.49377252e-12-1.06594333e+03-1.87978631e+01 0.00000000e+00    4
S(cr1)              TPIS89S  1.   0.   0.   0.C   200.000   368.300     32.06600 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 3.71369512e-01 1.53373501e-02-3.35441107e-05    3
 2.89249500e-08 0.00000000e+00-5.53213850e+02-1.59624498e+00 0.00000000e+00    4
S(cr2)              TPIS89S  1.   0.   0.   0.C   368.300   388.360     32.06600 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 2.08033146e+00 2.44137554e-03 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-6.85306695e+02-8.60715487e+00 0.00000000e+00    4
S(l)                TPIS89S  1.   0.   0.   0.C   388.360  6000.000     32.06600 1
 3.50078410e+00 3.81662100e-04-1.55569962e-07 2.72783689e-11-1.72812554e-15    2
-5.90873035e+02-1.52167270e+01-7.27405684e+01 4.81222534e-01-1.07842233e-03    3
 1.03257728e-06-3.58884490e-10 8.29134856e+03 3.15269743e+02 0.00000000e+00    4
Si(cr)              TPIS91SI 1.   0.   0.   0.C   200.000  1690.000     28.08550 1
 1.75547382e+00 3.17285497e-03-2.78236402e-06 1.26458065e-09-2.17128464e-13    2
-6.28657363e+02-8.55341177e+00-1.29176912e-01 1.47203139e-02-2.76510160e-05    3
 2.41878251e-08-7.93452912e-12-4.15516417e+02-3.59570008e-01 0.00000000e+00    4
```

TABLE VIII. - Continued.

```
Si(l)              TPIS91SI 1.   0.   0.   0.C  1690.000  6000.000     28.08550 1
 3.27138941e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 4.88286795e+03-1.32665477e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Sn(cr)             TPIS91SN 1.   0.   0.   0.C   200.000   505.118    118.71000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 2.96216499e+00-1.73632774e-03 1.74091602e-05    3
-3.62710022e-08 2.91162754e-11-9.01862907e+02-1.07148937e+01 0.00000000e+00    4
Sn(l)              TPIS91SN 1.   0.   0.   0.C   505.118  4700.000    118.71000 1
 3.41798439e+00-2.13956362e-04 1.98624849e-07-4.50904210e-11 3.43143537e-15    2
-9.50693870e+01-1.14544066e+01 6.03781588e+00-1.09309103e-02 1.72515982e-05    3
-1.24580001e-08 3.46049018e-12-6.28932703e+02-2.40877223e+01 0.00000000e+00    4
Sr(a)              SRD 92SR 1.   0.   0.   0.C   298.150   820.000     87.62000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 2.61121855e+00 3.06923896e-03-4.43980854e-06    3
 4.03524789e-09-1.48087835e-12-8.83002675e+02-9.01331093e+00 0.00000000e+00    4
Sr(b)              SRD 92SR 1.   0.   0.   0.C   820.000  1041.000     87.62000 1
 3.19032631e+00 4.83732655e-04 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-8.56080629e+02-1.15723466e+01 3.19032631e+00 4.83732655e-04 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-8.56080629e+02-1.15723466e+01 0.00000000e+00    4
Sr(l)              SRD 92SR 1.   0.   0.   0.C  1041.000  6000.000     87.62000 1
 4.45005178e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-9.43175540e+02-1.88969962e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Ta(cr)             J12/72TA 1.   0.   0.   0.C   200.000  3258.000    180.94790 1
 2.89594963e+00 5.33759133e-04-3.59144721e-08-7.20761461e-11 3.13302008e-14    2
-8.71255826e+02-1.16440280e+01 2.32998499e+00 4.45028402e-03-9.52242819e-06    3
 9.87829159e-09-3.78308406e-12-8.26091467e+02-9.27093646e+00 0.00000000e+00    4
Ta(l)              J12/72TA 1.   0.   0.   0.C  3258.000  6000.000    180.94790 1
 5.03216666e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-7.44223758e+02-2.59736577e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Th(a)              CODA89TH 1.   0.   0.   0.C   200.000  1650.000    232.03810 1
 2.68373118e+00 1.47036888e-03-4.27773953e-07 2.04762385e-10-3.65532090e-14    2
-8.48408536e+02-9.44661965e+00 2.72997787e+00 1.95817381e-03-2.55794477e-06    3
 2.92240279e-09-1.15807442e-12-8.83606615e+02-9.81429986e+00 0.00000000e+00    4
Th(b)              CODA89TH 1.   0.   0.   0.C  1650.000  2023.000    232.03810 1
 3.95235367e+00-3.05542000e-03 3.66314418e-06-1.32609091e-09 1.79849780e-13    2
-1.78233192e+02-1.48000708e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Th(l)              CODA89TH 1.   0.   0.   0.C  2023.000  6000.000    232.03810 1
 5.53249680e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-2.19180941e+03-2.76001205e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Ti(a)              CODA89TI 1.   0.   0.   0.C   200.000  1156.000     47.88000 1
 2.97987171e+01-5.67369024e-02 3.08487350e-05 0.00000000e+00 0.00000000e+00    2
-9.27557025e+03-1.56730793e+02 1.32829640e+00 1.04776117e-02-2.19816539e-05    3
 2.17468998e-08-7.66060428e-12-7.06881044e+02-6.19722912e+00 0.00000000e+00    4
Ti(b)              CODA89TI 1.   0.   0.   0.C  1156.000  1944.000     47.88000 1
 4.55050938e+00-5.78446834e-03 6.58428776e-06-2.60523484e-09 4.06930218e-13    2
-1.86695724e+02-1.97953040e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
Ti(l)              CODA89TI 1.   0.   0.   0.C  1944.000  6000.000     47.88000 1
 5.62871414e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-2.37509598e+03-3.07872691e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
U(a)               CODA89U  1.   0.   0.   0.C   200.000   942.000    238.02890 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
 0.00000000e+00 0.00000000e+00 2.59603330e+00 3.07896699e-03-3.79092180e-06    3
 6.28640576e-09-2.06728510e-12-8.88811048e+02-9.55446643e+00 0.00000000e+00    4
U(b)               CODA89U  1.   0.   0.   0.C   942.000  1049.000    238.02890 1
 5.09951879e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-1.67210741e+03-2.37803404e+01 5.09951879e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00-1.67210741e+03-2.37803404e+01 0.00000000e+00    4
U(c)               CODA89U  1.   0.   0.   0.C  1049.000  1408.000    238.02890 1
 4.60640495e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    2
-5.85945991e+02-1.98081297e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00    3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00    4
```

TABLE VIII. - Concluded.

```
U(l)                CODA89U  1.    0.    0.    0.C  1408.000  4000.000     238.02890 1
 5.78808331e+00-4.07320558e-04 3.58822296e-07-7.42103631e-11 5.81784231e-15     2
-1.06461642e+03-2.73491825e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
V(cr)               J 6/73V  1.    0.    0.    0.C   200.000  2190.000      50.94150 1
 4.48215589e+00-4.25728053e-03 5.38325211e-06-2.42006016e-09 4.23981192e-13     2
-1.28420195e+03-2.12401625e+01 8.64273023e-01 1.40301270e-02-3.15228495e-05     3
 3.16728638e-08-1.14327459e-11-6.59969586e+02-4.48332268e+00 0.00000000e+00     4
V(l)                J 6/73V  1.    0.    0.    0.C  2190.000  6000.000      50.94150 1
 5.55703222e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-1.89958163e+03-3.07034308e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
W(cr)               J 6/66W  1.    0.    0.    0.C   200.000  3680.000     183.85000 1
 3.94053690e+00-2.72324866e-03 3.25847837e-06-1.37908465e-09 2.10706661e-13     2
-1.16651320e+03-1.80486944e+01 1.63062672e+00 8.86791910e-03-2.11727341e-05     3
 2.25270259e-08-8.54544896e-12-7.33745920e+02-7.24762635e+00 0.00000000e+00     4
W(l)                J 6/66W  1.    0.    0.    0.C  3680.000  6000.000     183.85000 1
 4.27734166e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 2.75282232e+03-2.08636176e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Xe                  L12/91XE 1.    0.    0.    0.G   200.000  6000.000     131.29000 1
 2.50005322e+00-1.05136544e-07 6.75326897e-11-1.70944909e-14 1.47681049e-18     2
-7.45394186e+02 6.16412898e+00 2.50000000e+00-8.99141330e-14 2.52196860e-16     3
-2.92186662e-19 1.18949218e-22-7.45375000e+02 6.16441993e+00 0.00000000e+00     4
Zn(cr)              CODA89ZN 1.    0.    0.    0.C   200.000   692.730      65.39000 1
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
 0.00000000e+00 0.00000000e+00 1.85068929e+00 9.17791410e-03-2.61047009e-05     3
 3.38568767e-08-1.39430709e-11-7.89403133e+02-7.38526333e+00 0.00000000e+00     4
Zn(l)               CODA89ZN 1.    0.    0.    0.C   692.730  6000.000      65.39000 1
 3.77653043e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-4.31695298e+02-1.56708437e+01 3.77653043e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00-4.31695298e+02-1.56708437e+01 0.00000000e+00     4
Zr(a)               J 6/79ZR 1.    0.    0.    0.C   200.000  1135.000      91.22400 1
 2.28119546e+00 1.46971684e-03-1.04657616e-08 0.00000000e+00 0.00000000e+00     2
-6.61803147e+02-8.57377198e+00 2.18288840e+00 5.42886393e-03-1.21463952e-05     3
 1.31132729e-08-4.83818355e-12-8.08441355e+02-8.94741836e+00 0.00000000e+00     4
Zr(b)               J 6/79ZR 1.    0.    0.    0.C  1135.000  2125.000      91.22400 1
 4.06876245e+00-1.58489721e-03 1.02995129e-06-1.55767557e-10 2.30284611e-14     2
-6.91172261e+02-1.78593403e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
Zr(l)               J 6/79ZR 1.    0.    0.    0.C  2125.000  6000.000      91.22400 1
 5.03216666e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     2
-1.10084626e+03-2.54797587e+01 0.00000000e+00 0.00000000e+00 0.00000000e+00     3
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00     4
```

TABLE IX.1. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ag(cr, ℓ)

	T K	C_p° J/mol-K	$H^\circ(T)-H^\circ(0)$ kJ/mol	$S^\circ(T)$ J/mol-K	$-\{G^\circ(T)-H^\circ(0)\}/T$ J/mol-K	$H^\circ(T)$ kJ/mol	$-G^\circ(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.745	INFINITE	0
	200	24.147	3.298	32.611	16.120	-2.447	44.845	200
	298.15	25.350	5.745	42.550	23.281	0.000	42.550	298.15
	300	25.359	5.792	42.707	23.400	0.047	42.550	300
	400	25.811	8.350	50.064	29.188	2.605	43.551	400
	500	26.350	10.957	55.879	33.964	5.212	45.454	500
	600	26.976	13.623	60.738	38.032	7.878	47.607	600
	700	27.641	16.354	64.946	41.583	10.609	49.790	700
	800	28.315	19.152	68.681	44.741	13.407	51.922	800
	900	28.990	22.017	72.055	47.592	16.272	53.975	900
	1000	29.665	24.950	75.144	50.194	19.205	55.939	1000
	1100	30.345	27.950	78.003	52.594	22.205	57.817	1100
	1200	31.034	31.019	80.673	54.824	25.274	59.612	1200
cr	1235.08	31.278	32.112	81.571	55.571	26.367	60.223	1235.08
ℓ	1235.08	33.400	43.112	90.477	55.571	37.367	60.223	1235.08
	1300	33.400	45.280	92.188	57.357	39.535	61.776	1300
	1400	33.400	48.620	94.663	59.935	42.875	64.038	1400
	1500	33.400	51.960	96.968	62.328	46.215	66.158	1500
	1600	33.400	55.300	99.123	64.561	49.555	68.151	1600
	1700	33.400	58.640	101.148	66.654	52.895	70.033	1700
	1800	33.400	61.980	103.057	68.624	56.235	71.816	1800
	1900	33.400	65.320	104.863	70.484	59.575	73.508	1900
	2000	33.400	68.660	106.576	72.246	62.915	75.119	2000
	2100	33.400	72.000	108.206	73.920	66.255	76.656	2100
	2200	33.400	75.340	109.760	75.514	69.595	78.126	2200
	2300	33.400	78.680	111.244	77.036	72.935	79.533	2300
	2400	33.400	82.020	112.666	78.491	76.275	80.885	2400
	2500	33.400	85.360	114.029	79.885	79.615	82.183	2500
	2600	33.400	88.700	115.339	81.224	82.955	83.433	2600
	2700	33.400	92.040	116.600	82.511	86.295	84.639	2700
	2800	33.400	95.380	117.815	83.750	89.635	85.802	2800
	2900	33.400	98.720	118.987	84.945	92.975	86.926	2900
	3000	33.400	102.060	120.119	86.099	96.315	88.014	3000
	3100	33.400	105.400	121.214	87.214	99.655	89.067	3100
	3200	33.400	108.740	122.274	88.293	102.995	90.088	3200
	3300	33.400	112.080	123.302	89.339	106.335	91.079	3300
	3400	33.400	115.420	124.299	90.352	109.675	92.042	3400
	3500	33.400	118.760	125.268	91.336	113.015	92.977	3500
	3600	33.400	122.100	126.208	92.292	116.355	93.888	3600
	3700	33.400	125.440	127.124	93.221	119.695	94.773	3700
	3800	33.400	128.780	128.014	94.125	123.035	95.637	3800
	3900	33.400	132.120	128.882	95.005	126.375	96.478	3900
	4000	33.400	135.460	129.727	95.862	129.715	97.299	4000
	4100	33.400	138.800	130.552	96.698	133.055	98.100	4100
	4200	33.400	142.140	131.357	97.514	136.395	98.882	4200
	4300	33.400	145.480	132.143	98.310	139.735	99.646	4300
	4400	33.400	148.820	132.911	99.088	143.075	100.394	4400
	4500	33.400	152.160	133.661	99.848	146.415	101.125	4500
	4600	33.400	155.500	134.396	100.591	149.755	101.840	4600
	4700	33.400	158.840	135.114	101.318	153.095	102.540	4700
	4800	33.400	162.180	135.817	102.029	156.435	103.226	4800
	4900	33.400	165.520	136.506	102.726	159.775	103.898	4900
	5000	33.400	168.860	137.180	103.408	163.115	104.557	5000
	5100	33.400	172.200	137.842	104.077	166.455	105.204	5100
	5200	33.400	175.540	138.490	104.733	169.795	105.837	5200
	5300	33.400	178.880	139.127	105.376	173.135	106.460	5300
	5400	33.400	182.220	139.751	106.006	176.475	107.070	5400
	5500	33.400	185.560	140.364	106.626	179.815	107.670	5500
	5600	33.400	188.900	140.966	107.233	183.155	108.259	5600
	5700	33.400	192.240	141.557	107.830	186.495	108.838	5700
	5800	33.400	195.580	142.138	108.417	189.835	109.407	5800
	5900	33.400	198.920	142.709	108.993	193.175	109.967	5900
	6000	33.400	202.260	143.270	109.560	196.515	110.517	6000

TABLE IX.2. - THERMODYNAMIC FUNCTIONS FOR Al(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.540	INFINITE	0
	200	21.340	2.282	19.152	7.741	-2.258	30.441	200
	298.15	24.200	4.540	28.300	13.073	0.000	28.300	298.15
	300	24.234	4.585	28.450	13.167	0.045	28.300	300
	400	25.734	7.088	35.640	17.921	2.548	29.271	400
	500	26.910	9.721	41.512	22.069	5.181	31.149	500
	600	28.044	12.468	46.517	25.737	7.928	33.303	600
	700	29.344	15.336	50.934	29.026	10.796	35.512	700
	800	31.005	18.349	54.956	32.020	13.809	37.695	800
	900	33.211	21.555	58.729	34.779	17.015	39.824	900
cr	933.61	34.104	22.686	59.963	35.664	18.146	40.527	933.61
ℓ	933.61	31.750	33.386	71.424	35.664	28.846	40.527	933.61
	1000	31.750	35.494	73.605	38.111	30.954	42.651	1000
	1100	31.750	38.669	76.631	41.478	34.129	45.605	1100
	1200	31.750	41.844	79.394	44.524	37.304	48.307	1200
	1300	31.750	45.019	81.935	47.305	40.479	50.798	1300
	1400	31.750	48.194	84.288	49.864	43.654	53.107	1400
	1500	31.750	51.369	86.479	52.233	46.829	55.259	1500
	1600	31.750	54.544	88.528	54.438	50.004	57.275	1600
	1700	31.750	57.719	90.452	56.500	53.179	59.171	1700
	1800	31.750	60.894	92.267	58.437	56.354	60.960	1800
	1900	31.750	64.069	93.984	60.263	59.529	62.653	1900
	2000	31.750	67.244	95.612	61.991	62.704	64.261	2000
	2100	31.750	70.419	97.162	63.629	65.879	65.791	2100
	2200	31.750	73.594	98.639	65.187	69.054	67.250	2200
	2300	31.750	76.769	100.050	66.672	72.229	68.646	2300
	2400	31.750	79.944	101.401	68.091	75.404	69.983	2400
	2500	31.750	83.119	102.697	69.450	78.579	71.266	2500
	2600	31.750	86.294	103.942	70.753	81.754	72.499	2600
	2700	31.750	89.469	105.141	72.004	84.929	73.686	2700
	2800	31.750	92.644	106.295	73.208	88.104	74.830	2800
	2900	31.750	95.819	107.410	74.369	91.279	75.934	2900
	3000	31.750	98.994	108.486	75.488	94.454	77.001	3000
	3100	31.750	102.169	109.527	76.569	97.629	78.034	3100
	3200	31.750	105.344	110.535	77.615	100.804	79.034	3200
	3300	31.750	108.519	111.512	78.628	103.979	80.003	3300
	3400	31.750	111.694	112.460	79.609	107.154	80.944	3400
	3500	31.750	114.869	113.380	80.561	110.329	81.858	3500
	3600	31.750	118.044	114.275	81.485	113.504	82.746	3600
	3700	31.750	121.219	115.145	82.383	116.679	83.610	3700
	3800	31.750	124.394	115.991	83.256	119.854	84.451	3800
	3900	31.750	127.569	116.816	84.106	123.029	85.270	3900
	4000	31.750	130.744	117.620	84.934	126.204	86.069	4000
	4100	31.750	133.919	118.404	85.741	129.379	86.848	4100
	4200	31.750	137.094	119.169	86.528	132.554	87.609	4200
	4300	31.750	140.269	119.916	87.295	135.729	88.351	4300
	4400	31.750	143.444	120.646	88.045	138.904	89.077	4400
	4500	31.750	146.619	121.359	88.778	142.079	89.786	4500
	4600	31.750	149.794	122.057	89.493	145.254	90.480	4600
	4700	31.750	152.969	122.740	90.194	148.429	91.160	4700
	4800	31.750	156.144	123.409	90.879	151.604	91.824	4800
	4900	31.750	159.319	124.063	91.549	154.779	92.476	4900
	5000	31.750	162.494	124.705	92.206	157.954	93.114	5000
	5100	31.750	165.669	125.333	92.849	161.129	93.740	5100
	5200	31.750	168.844	125.950	93.480	164.304	94.353	5200
	5300	31.750	172.019	126.555	94.098	167.479	94.955	5300
	5400	31.750	175.194	127.148	94.705	170.654	95.546	5400
	5500	31.750	178.369	127.731	95.300	173.829	96.126	5500
	5600	31.750	181.544	128.303	95.884	177.004	96.695	5600
	5700	31.750	184.719	128.865	96.458	180.179	97.254	5700
	5800	31.750	187.894	129.417	97.022	183.354	97.804	5800
	5900	31.750	191.069	129.960	97.575	186.529	98.345	5900
	6000	31.750	194.244	130.493	98.119	189.704	98.876	6000

TABLE IX.3. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ar

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	146.547	125.761	-2.040	156.748	200
298.15	20.786	6.197	154.847	134.060	0.000	154.847	298.15
300	20.786	6.236	154.975	134.189	0.038	154.847	300
400	20.786	8.315	160.955	140.169	2.117	155.662	400
500	20.786	10.393	165.593	144.807	4.196	157.202	500
600	20.786	12.472	169.383	148.597	6.274	158.926	600
700	20.786	14.550	172.587	151.801	8.353	160.655	700
800	20.786	16.629	175.363	154.577	10.432	162.324	800
900	20.786	18.708	177.811	157.025	12.510	163.911	900
1000	20.786	20.786	180.001	159.215	14.589	165.413	1000
1100	20.786	22.865	181.982	161.196	16.667	166.830	1100
1200	20.786	24.944	183.791	163.005	18.746	168.169	1200
1300	20.786	27.022	185.455	164.669	20.825	169.436	1300
1400	20.786	29.101	186.995	166.209	22.903	170.636	1400
1500	20.786	31.179	188.429	167.643	24.982	171.775	1500
1600	20.786	33.258	189.771	168.985	27.061	172.858	1600
1700	20.786	35.337	191.031	170.245	29.139	173.890	1700
1800	20.786	37.415	192.219	171.433	31.218	174.876	1800
1900	20.786	39.494	193.343	172.557	33.296	175.819	1900
2000	20.786	41.573	194.409	173.623	35.375	176.722	2000
2100	20.786	43.651	195.423	174.637	37.454	177.588	2100
2200	20.786	45.730	196.390	175.604	39.532	178.421	2200
2300	20.786	47.808	197.314	176.528	41.611	179.223	2300
2400	20.786	49.887	198.199	177.413	43.690	179.995	2400
2500	20.786	51.966	199.048	178.261	45.768	180.740	2500
2600	20.786	54.044	199.863	179.077	47.847	181.460	2600
2700	20.786	56.123	200.647	179.861	49.926	182.156	2700
2800	20.786	58.202	201.403	180.617	52.004	182.830	2800
2900	20.786	60.280	202.133	181.346	54.083	183.483	2900
3000	20.786	62.359	202.837	182.051	56.161	184.117	3000
3100	20.786	64.437	203.519	182.733	58.240	184.732	3100
3200	20.786	66.516	204.179	183.393	60.319	185.329	3200
3300	20.786	68.595	204.819	184.032	62.397	185.910	3300
3400	20.786	70.673	205.439	184.653	64.476	186.476	3400
3500	20.786	72.752	206.042	185.255	66.555	187.026	3500
3600	20.786	74.831	206.627	185.841	68.633	187.562	3600
3700	20.786	76.909	207.197	186.410	70.712	188.085	3700
3800	20.786	78.988	207.751	186.965	72.790	188.596	3800
3900	20.786	81.066	208.291	187.505	74.869	189.094	3900
4000	20.786	83.145	208.817	188.031	76.948	189.580	4000
4100	20.786	85.224	209.331	188.544	79.026	190.056	4100
4200	20.786	87.302	209.831	189.045	81.105	190.521	4200
4300	20.786	89.381	210.321	189.534	83.184	190.976	4300
4400	20.786	91.460	210.798	190.012	85.262	191.421	4400
4500	20.786	93.538	211.266	190.479	87.341	191.856	4500
4600	20.786	95.617	211.722	190.936	89.419	192.283	4600
4700	20.786	97.695	212.169	191.383	91.498	192.702	4700
4800	20.786	99.774	212.607	191.821	93.577	193.112	4800
4900	20.786	101.853	213.036	192.249	95.655	193.514	4900
5000	20.786	103.931	213.456	192.669	97.734	193.909	5000
5100	20.786	106.010	213.867	193.081	99.813	194.296	5100
5200	20.786	108.089	214.271	193.485	101.891	194.676	5200
5300	20.786	110.167	214.667	193.880	103.970	195.050	5300
5400	20.786	112.246	215.055	194.269	106.048	195.417	5400
5500	20.786	114.325	215.437	194.650	108.127	195.777	5500
5600	20.786	116.403	215.811	195.025	110.206	196.132	5600
5700	20.786	118.482	216.179	195.393	112.284	196.480	5700
5800	20.786	120.560	216.541	195.754	114.363	196.823	5800
5900	20.786	122.639	216.896	196.110	116.442	197.160	5900
6000	20.786	124.718	217.245	196.459	118.520	197.492	6000
6200	20.817	128.879	217.928	197.141	122.681	198.140	6200
6400	20.818	133.043	218.589	197.801	126.845	198.769	6400
6600	20.803	137.205	219.229	198.440	131.007	199.379	6600
6800	20.781	141.363	219.850	199.061	135.166	199.972	6800
7000	20.759	145.517	220.452	199.664	139.320	200.549	7000
7200	20.740	149.667	221.036	200.249	143.470	201.110	7200
7400	20.726	153.814	221.604	200.819	147.616	201.656	7400
7600	20.718	157.958	222.157	201.373	151.761	202.188	7600
7800	20.716	162.101	222.695	201.913	155.904	202.707	7800
8000	20.719	166.245	223.220	202.439	160.047	203.214	8000

TABLE IX.3. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.726	170.389	223.731	202.952	164.192	203.708	8200
8400	20.736	174.535	224.231	203.453	168.338	204.191	8400
8600	20.748	178.684	224.719	203.942	172.486	204.662	8600
8800	20.762	182.835	225.196	204.419	176.637	205.124	8800
9000	20.777	186.989	225.663	204.886	180.791	205.575	9000
9200	20.792	191.145	226.120	205.343	184.948	206.017	9200
9400	20.807	195.305	226.567	205.790	189.108	206.449	9400
9600	20.821	199.468	227.005	206.227	193.271	206.873	9600
9800	20.836	203.634	227.435	206.656	197.436	207.288	9800
10000	20.851	207.803	227.856	207.075	201.605	207.695	10000
10500	20.891	218.238	228.874	208.089	212.040	208.680	10500
11000	20.948	228.697	229.847	209.056	222.499	209.620	11000
11500	21.039	239.192	230.780	209.981	232.994	210.520	11500
12000	21.183	249.744	231.678	210.866	243.547	211.383	12000
12500	21.402	260.387	232.547	211.716	254.190	212.212	12500
13000	21.719	271.163	233.392	212.534	264.966	213.010	13000
13500	22.152	282.125	234.220	213.322	275.928	213.781	13500
14000	22.718	293.337	235.035	214.083	287.140	214.525	14000
14500	23.430	304.868	235.844	214.819	298.671	215.246	14500
15000	24.295	316.793	236.653	215.533	310.596	215.946	15000
15500	25.311	329.188	237.466	216.228	322.991	216.628	15500
16000	26.475	342.129	238.287	216.904	335.931	217.292	16000
16500	27.770	355.685	239.121	217.565	349.487	217.940	16500
17000	29.174	369.917	239.971	218.211	363.719	218.576	17000
17500	30.656	384.872	240.838	218.845	378.674	219.199	17500
18000	32.176	400.579	241.723	219.468	394.382	219.813	18000
18500	33.682	417.045	242.625	220.082	410.848	220.417	18500
19000	35.114	434.249	243.543	220.687	428.051	221.014	19000
19500	36.403	452.136	244.472	221.285	445.938	221.603	19500
20000	37.466	470.614	245.407	221.877	464.416	222.186	20000

TABLE IX.4. - THERMODYNAMIC FUNCTIONS FOR B(β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-1.214	INFINITE	0
	200	6.002	0.357	2.418	0.634	-0.857	6.704	200
	298.15	11.315	1.214	5.834	1.762	0.000	5.834	298.15
	300	11.405	1.235	5.904	1.788	0.021	5.834	300
	400	15.667	2.598	9.795	3.301	1.384	6.336	400
	500	18.738	4.329	13.645	4.988	3.115	7.416	500
	600	20.780	6.309	17.251	6.735	5.095	8.758	600
	700	22.249	8.465	20.570	8.478	7.251	10.212	700
	800	23.361	10.747	23.617	10.182	9.533	11.700	800
	900	24.245	13.129	26.421	11.833	11.915	13.182	900
	1000	24.978	15.591	29.014	13.423	14.377	14.637	1000
	1100	25.607	18.121	31.425	14.951	16.907	16.055	1100
	1200	26.161	20.710	33.678	16.419	19.496	17.431	1200
	1300	26.663	23.352	35.792	17.829	22.138	18.763	1300
	1400	27.125	26.042	37.785	19.184	24.828	20.051	1400
	1500	27.557	28.776	39.671	20.487	27.562	21.296	1500
	1600	27.966	31.552	41.463	21.743	30.338	22.501	1600
	1700	28.356	34.368	43.170	22.953	33.154	23.667	1700
	1800	28.733	37.223	44.801	24.122	36.009	24.796	1800
	1900	29.097	40.115	46.365	25.252	38.901	25.891	1900
	2000	29.452	43.042	47.866	26.345	41.828	26.952	2000
	2100	29.799	46.005	49.312	27.405	44.791	27.983	2100
	2200	30.139	49.002	50.706	28.432	47.788	28.984	2200
	2300	30.475	52.032	52.053	29.430	50.818	29.958	2300
β	2350	30.641	53.560	52.710	29.919	52.346	30.435	2350
ℓ	2350	31.750	103.768	74.075	29.919	102.554	30.435	2350
	2400	31.750	105.356	74.744	30.845	104.142	31.351	2400
	2500	31.750	108.531	76.040	32.627	107.317	33.113	2500
	2600	31.750	111.706	77.285	34.321	110.492	34.788	2600
	2700	31.750	114.881	78.483	35.935	113.667	36.384	2700
	2800	31.750	118.056	79.638	37.475	116.842	37.909	2800
	2900	31.750	121.231	80.752	38.948	120.017	39.367	2900
	3000	31.750	124.406	81.828	40.360	123.192	40.765	3000
	3100	31.750	127.581	82.870	41.714	126.367	42.106	3100
	3200	31.750	130.756	83.878	43.016	129.542	43.396	3200
	3300	31.750	133.931	84.855	44.269	132.717	44.637	3300
	3400	31.750	137.106	85.802	45.477	135.892	45.834	3400
	3500	31.750	140.281	86.723	46.643	139.067	46.989	3500
	3600	31.750	143.456	87.617	47.768	142.242	48.106	3600
	3700	31.750	146.631	88.487	48.857	145.417	49.185	3700
	3800	31.750	149.806	89.334	49.911	148.592	50.231	3800
	3900	31.750	152.981	90.159	50.933	151.767	51.244	3900
	4000	31.750	156.156	90.962	51.923	154.942	52.227	4000
	4100	31.750	159.331	91.746	52.885	158.117	53.181	4100
	4200	31.750	162.506	92.511	53.820	161.292	54.109	4200
	4300	31.750	165.681	93.259	54.728	164.467	55.010	4300
	4400	31.750	168.856	93.988	55.612	167.642	55.888	4400
	4500	31.750	172.031	94.702	56.473	170.817	56.743	4500
	4600	31.750	175.206	95.400	57.312	173.992	57.576	4600
	4700	31.750	178.381	96.083	58.129	177.167	58.388	4700
	4800	31.750	181.556	96.751	58.927	180.342	59.180	4800
	4900	31.750	184.731	97.406	59.706	183.517	59.953	4900
	5000	31.750	187.906	98.047	60.466	186.692	60.709	5000
	5100	31.750	191.081	98.676	61.209	189.867	61.447	5100
	5200	31.750	194.256	99.292	61.936	193.042	62.169	5200
	5300	31.750	197.431	99.897	62.646	196.217	62.875	5300
	5400	31.750	200.606	100.491	63.341	199.392	63.566	5400
	5500	31.750	203.781	101.073	64.022	202.567	64.243	5500
	5600	31.750	206.956	101.645	64.689	205.742	64.906	5600
	5700	31.750	210.131	102.207	65.342	208.917	65.555	5700
	5800	31.750	213.306	102.760	65.983	212.092	66.192	5800
	5900	31.750	216.481	103.302	66.611	215.267	66.816	5900
	6000	31.750	219.656	103.836	67.227	218.442	67.429	6000

TABLE IX.5. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ba(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.907	INFINITE	0
	200	26.363	4.238	51.517	30.327	-2.669	64.862	200
	298.15	28.110	6.907	62.352	39.186	0.000	62.352	298.15
	300	28.141	6.959	62.526	39.329	0.052	62.353	300
	400	29.835	9.858	70.854	46.209	2.951	63.477	400
	500	31.529	12.926	77.693	51.841	6.019	65.655	500
	600	33.224	16.164	83.592	56.652	9.257	68.164	600
	700	34.918	19.571	88.840	60.882	12.664	70.749	700
	800	36.612	23.147	93.613	64.679	16.240	73.313	800
	900	38.306	26.893	98.023	68.142	19.986	75.817	900
cr	1000	40.000	30.808	102.147	71.339	23.901	78.246	1000
ℓ	1000	40.000	38.658	109.997	71.339	31.751	78.246	1000
	1100	40.000	42.658	113.809	75.029	35.751	81.308	1100
	1200	40.000	46.658	117.290	78.408	39.751	84.164	1200
	1300	40.000	50.658	120.492	81.524	43.751	86.837	1300
	1400	40.000	54.658	123.456	84.414	47.751	89.348	1400
	1500	40.000	58.658	126.216	87.110	51.751	91.715	1500
	1600	40.000	62.658	128.797	89.636	55.751	93.953	1600
	1700	40.000	66.658	131.222	92.011	59.751	96.074	1700
	1800	40.000	70.658	133.509	94.254	63.751	98.091	1800
	1900	40.000	74.658	135.671	96.377	67.751	100.013	1900
	2000	40.000	78.658	137.723	98.394	71.751	101.847	2000
	2100	40.000	82.658	139.675	100.313	75.751	103.602	2100
	2200	40.000	86.658	141.535	102.145	79.751	105.285	2200
	2300	40.000	90.658	143.313	103.897	83.751	106.900	2300
	2400	40.000	94.658	145.016	105.575	87.751	108.453	2400
	2500	40.000	98.658	146.649	107.185	91.751	109.948	2500
	2600	40.000	102.658	148.218	108.734	95.751	111.390	2600
	2700	40.000	106.658	149.727	110.224	99.751	112.782	2700
	2800	40.000	110.658	151.182	111.661	103.751	114.128	2800
	2900	40.000	114.658	152.586	113.048	107.751	115.430	2900
	3000	40.000	118.658	153.942	114.389	111.751	116.691	3000
	3100	40.000	122.658	155.253	115.686	115.751	117.914	3100
	3200	40.000	126.658	156.523	116.942	119.751	119.101	3200
	3300	40.000	130.658	157.754	118.161	123.751	120.254	3300
	3400	40.000	134.658	158.948	119.343	127.751	121.374	3400
	3500	40.000	138.658	160.108	120.491	131.751	122.464	3500
	3600	40.000	142.658	161.234	121.607	135.751	123.526	3600
	3700	40.000	146.658	162.330	122.693	139.751	124.560	3700
	3800	40.000	150.658	163.397	123.750	143.751	125.568	3800
	3900	40.000	154.658	164.436	124.780	147.751	126.551	3900
	4000	40.000	158.658	165.449	125.784	151.751	127.511	4000
	4100	40.000	162.658	166.437	126.764	155.751	128.448	4100
	4200	40.000	166.658	167.400	127.720	159.751	129.364	4200
	4300	40.000	170.658	168.342	128.654	163.751	130.260	4300
	4400	40.000	174.658	169.261	129.566	167.751	131.136	4400
	4500	40.000	178.658	170.160	130.458	171.751	131.993	4500
	4600	40.000	182.658	171.039	131.331	175.751	132.832	4600
	4700	40.000	186.658	171.900	132.185	179.751	133.655	4700
	4800	40.000	190.658	172.742	133.021	183.751	134.460	4800
	4900	40.000	194.658	173.566	133.840	187.751	135.250	4900
	5000	40.000	198.658	174.375	134.643	191.751	136.024	5000
	5100	40.000	202.658	175.167	135.430	195.751	136.784	5100
	5200	40.000	206.658	175.943	136.201	199.751	137.530	5200
	5300	40.000	210.658	176.705	136.958	203.751	138.262	5300
	5400	40.000	214.658	177.453	137.701	207.751	138.981	5400
	5500	40.000	218.658	178.187	138.431	211.751	139.687	5500
	5600	40.000	222.658	178.908	139.147	215.751	140.381	5600
	5700	40.000	226.658	179.616	139.851	219.751	141.063	5700
	5800	40.000	230.658	180.311	140.543	223.751	141.734	5800
	5900	40.000	234.658	180.995	141.223	227.751	142.393	5900
	6000	40.000	238.658	181.667	141.891	231.751	143.042	6000

TABLE IX.6. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Be(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-1.942	INFINITE	0
	200	10.003	0.620	4.212	1.110	-1.322	10.821	200
	298.15	16.443	1.942	9.503	2.989	0.000	9.503	298.15
	300	16.473	1.972	9.604	3.029	0.030	9.503	300
	400	19.965	3.815	14.880	5.343	1.873	10.199	400
	500	21.943	5.917	19.564	7.729	3.975	11.613	500
	600	23.336	8.184	23.693	10.053	6.242	13.289	600
	700	24.463	10.576	27.377	12.269	8.634	15.044	700
	800	25.458	13.073	30.710	14.369	11.131	16.797	800
	900	26.384	15.665	33.762	16.357	13.723	18.515	900
	1000	27.274	18.348	36.588	18.240	16.406	20.182	1000
	1100	28.147	21.119	39.229	20.030	19.177	21.795	1100
	1200	29.015	23.977	41.715	21.734	22.035	23.353	1200
	1300	29.885	26.922	44.072	23.363	24.980	24.856	1300
	1400	30.762	29.955	46.319	24.923	28.013	26.310	1400
	1500	31.649	33.075	48.471	26.421	31.133	27.716	1500
α	1543	32.035	34.444	49.371	27.048	32.502	28.307	1543
β	1543	30.000	41.144	53.714	27.048	39.202	28.307	1543
β	1563	30.000	41.744	54.100	27.392	39.802	28.635	1563
ℓ	1563	29.480	49.744	59.218	27.392	47.802	28.635	1563
	1600	29.480	50.835	59.908	28.136	48.893	29.350	1600
	1700	29.480	53.783	61.695	30.058	51.841	31.200	1700
	1800	29.480	56.731	63.380	31.863	54.789	32.942	1800
	1900	29.480	59.679	64.974	33.564	57.737	34.586	1900
	2000	29.480	62.627	66.486	35.173	60.685	36.144	2000
	2100	29.480	65.575	67.925	36.698	63.633	37.623	2100
	2200	29.480	68.523	69.296	38.149	66.581	39.032	2200
	2300	29.480	71.471	70.606	39.532	69.529	40.376	2300
	2400	29.480	74.419	71.861	40.853	72.477	41.662	2400
	2500	29.480	77.367	73.065	42.118	75.425	42.895	2500
	2600	29.480	80.315	74.221	43.330	78.373	44.077	2600
	2700	29.480	83.263	75.333	44.495	81.321	45.214	2700
	2800	29.480	86.211	76.405	45.616	84.269	46.309	2800
	2900	29.480	89.159	77.440	46.695	87.217	47.365	2900
	3000	29.480	92.107	78.439	47.737	90.165	48.384	3000
	3100	29.480	95.055	79.406	48.743	93.113	49.370	3100
	3200	29.480	98.003	80.342	49.716	96.061	50.323	3200
	3300	29.480	100.951	81.249	50.658	99.009	51.246	3300
	3400	29.480	103.899	82.129	51.571	101.957	52.142	3400
	3500	29.480	106.847	82.984	52.456	104.905	53.011	3500
	3600	29.480	109.795	83.814	53.316	107.853	53.855	3600
	3700	29.480	112.743	84.622	54.151	110.801	54.676	3700
	3800	29.480	115.691	85.408	54.963	113.749	55.474	3800
	3900	29.480	118.639	86.174	55.754	116.697	56.252	3900
	4000	29.480	121.587	86.920	56.523	119.645	57.009	4000
	4100	29.480	124.535	87.648	57.274	122.593	57.747	4100
	4200	29.480	127.483	88.359	58.005	125.541	58.468	4200
	4300	29.480	130.431	89.052	58.719	128.489	59.171	4300
	4400	29.480	133.379	89.730	59.417	131.437	59.858	4400
	4500	29.480	136.327	90.392	60.098	134.385	60.529	4500
	4600	29.480	139.275	91.040	60.763	137.333	61.185	4600
	4700	29.480	142.223	91.674	61.414	140.281	61.827	4700
	4800	29.480	145.171	92.295	62.051	143.229	62.456	4800
	4900	29.480	148.119	92.903	62.675	146.177	63.071	4900
	5000	29.480	151.067	93.499	63.285	149.125	63.674	5000
	5100	29.480	154.015	94.082	63.883	152.073	64.264	5100
	5200	29.480	156.963	94.655	64.470	155.021	64.843	5200
	5300	29.480	159.911	95.216	65.044	157.969	65.411	5300
	5400	29.480	162.859	95.767	65.608	160.917	65.968	5400
	5500	29.480	165.807	96.308	66.162	163.865	66.515	5500
	5600	29.480	168.755	96.839	66.705	166.813	67.051	5600
	5700	29.480	171.703	97.361	67.238	169.761	67.579	5700
	5800	29.480	174.651	97.874	67.762	172.709	68.097	5800
	5900	29.480	177.599	98.378	68.276	175.657	68.605	5900
	6000	29.480	180.547	98.873	68.782	178.605	69.106	6000

TABLE IX.7. - THERMODYNAMIC FUNCTIONS FOR $Br_2(cr, \ell)$

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-24.520	INFINITE	0
	200	53.770	7.701	87.408	48.905	-16.819	171.505	200
cr	265.90	61.640	11.477	103.677	60.514	-13.043	152.729	265.90
ℓ	265.90	77.739	22.052	143.447	60.514	-2.468	152.729	265.90
	298.15	75.680	24.520	152.210	69.970	0.000	152.210	298.15
	300	75.623	24.660	152.678	70.478	0.140	152.211	300
	400	75.302	32.193	174.350	93.868	7.673	155.168	400
	500	75.302	39.723	191.153	111.707	15.203	160.747	500
	600	75.302	47.253	204.882	126.127	22.733	166.993	600
	700	75.302	54.783	216.490	138.228	30.263	173.256	700
	800	75.302	62.314	226.545	148.653	37.794	179.303	800
	900	75.302	69.844	235.414	157.810	45.324	185.054	900
	1000	75.302	77.374	243.348	165.974	52.854	190.494	1000
	1100	75.302	84.904	250.525	173.340	60.384	195.630	1100
	1200	75.302	92.434	257.077	180.049	67.914	200.482	1200
	1300	75.302	99.965	263.105	186.209	75.445	205.070	1300
	1400	75.302	107.495	268.685	191.903	82.975	209.417	1400
	1500	75.302	115.025	273.880	197.197	90.505	213.544	1500
	1600	75.302	122.555	278.740	202.143	98.035	217.468	1600
	1700	75.302	130.085	283.305	206.785	105.565	221.208	1700
	1800	75.302	137.615	287.609	211.156	113.095	224.779	1800
	1900	75.302	145.146	291.681	215.288	120.626	228.194	1900
	2000	75.302	152.676	295.543	219.205	128.156	231.465	2000
	2100	75.302	160.206	299.217	222.929	135.686	234.605	2100
	2200	75.302	167.736	302.720	226.477	143.216	237.622	2200
	2300	75.302	175.266	306.068	229.865	150.746	240.526	2300
	2400	75.302	182.797	309.272	233.107	158.277	243.324	2400
	2500	75.302	190.327	312.346	236.216	165.807	246.024	2500
	2600	75.302	197.857	315.300	239.201	173.337	248.632	2600
	2700	75.302	205.387	318.142	242.072	180.867	251.154	2700
	2800	75.302	212.917	320.880	244.838	188.397	253.596	2800
	2900	75.302	220.448	323.523	247.506	195.928	255.962	2900
	3000	75.302	227.978	326.076	250.083	203.458	258.256	3000
	3100	75.302	235.508	328.545	252.574	210.988	260.484	3100
	3200	75.302	243.038	330.936	254.986	218.518	262.649	3200
	3300	75.302	250.568	333.253	257.323	226.048	264.753	3300
	3400	75.302	258.099	335.501	259.589	233.579	266.801	3400
	3500	75.302	265.629	337.683	261.790	241.109	268.795	3500
	3600	75.302	273.159	339.805	263.927	248.639	270.738	3600
	3700	75.302	280.689	341.868	266.006	256.169	272.633	3700
	3800	75.302	288.219	343.876	268.029	263.699	274.482	3800
	3900	75.302	295.749	345.832	269.999	271.229	276.286	3900
	4000	75.302	303.280	347.739	271.919	278.760	278.049	4000
	4100	75.302	310.810	349.598	273.791	286.290	279.771	4100
	4200	75.302	318.340	351.413	275.617	293.820	281.455	4200
	4300	75.302	325.870	353.185	277.401	301.350	283.103	4300
	4400	75.302	333.400	354.916	279.143	308.880	284.716	4400
	4500	75.302	340.931	356.608	280.846	316.411	286.294	4500
	4600	75.302	348.461	358.263	282.511	323.941	287.841	4600
	4700	75.302	355.991	359.882	284.140	331.471	289.357	4700
	4800	75.302	363.521	361.468	285.734	339.001	290.843	4800
	4900	75.302	371.051	363.020	287.296	346.531	292.300	4900
	5000	75.302	378.582	364.542	288.825	354.062	293.729	5000
	5100	75.302	386.112	366.033	290.325	361.592	295.133	5100
	5200	75.302	393.642	367.495	291.795	369.122	296.510	5200
	5300	75.302	401.172	368.930	293.237	376.652	297.863	5300
	5400	75.302	408.702	370.337	294.651	384.182	299.192	5400
	5500	75.302	416.233	371.719	296.040	391.713	300.498	5500
	5600	75.302	423.763	373.076	297.404	399.243	301.782	5600
	5700	75.302	431.293	374.408	298.743	406.773	303.045	5700
	5800	75.302	438.823	375.718	300.059	414.303	304.287	5800
	5900	75.302	446.353	377.005	301.352	421.833	305.508	5900
	6000	75.302	453.883	378.271	302.624	429.363	306.710	6000

TABLE IX.8. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR C(gr)

T K	C_p° J/mol-K	$H^\circ(T)-H^\circ(0)$ kJ/mol	$S^\circ(T)$ J/mol-K	$-\{G^\circ(T)-H^\circ(0)\}/T$ J/mol-K	$H^\circ(T)$ kJ/mol	$-G^\circ(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-1.053	INFINITE	0
200	5.007	0.388	3.074	1.134	-0.665	6.401	200
298.15	8.528	1.054	5.734	2.201	0.000	5.734	298.15
300	8.592	1.069	5.787	2.222	0.016	5.734	300
400	11.824	2.093	8.711	3.477	1.040	6.111	400
500	14.617	3.420	11.659	4.819	2.366	6.926	500
600	16.835	4.997	14.529	6.200	3.944	7.956	600
700	18.534	6.770	17.257	7.587	5.716	9.092	700
800	19.828	8.690	19.820	8.957	7.637	10.274	800
900	20.826	10.725	22.216	10.299	9.672	11.470	900
1000	21.612	12.849	24.452	11.604	11.795	12.657	1000
1100	22.243	15.042	26.543	12.868	13.989	13.826	1100
1200	22.762	17.294	28.501	14.090	16.240	14.968	1200
1300	23.198	19.592	30.341	15.270	18.539	16.080	1300
1400	23.572	21.931	32.074	16.409	20.878	17.161	1400
1500	23.897	24.305	33.712	17.508	23.251	18.211	1500
1600	24.185	26.709	35.263	18.570	25.656	19.228	1600
1700	24.443	29.141	36.737	19.596	28.087	20.215	1700
1800	24.676	31.597	38.141	20.587	30.544	21.173	1800
1900	24.890	34.076	39.481	21.547	33.022	22.101	1900
2000	25.089	36.575	40.763	22.476	35.521	23.002	2000
2100	25.275	39.093	41.992	23.376	38.039	23.878	2100
2200	25.449	41.629	43.172	24.249	40.576	24.728	2200
2300	25.615	44.182	44.306	25.097	43.129	25.555	2300
2400	25.773	46.752	45.400	25.920	45.698	26.359	2400
2500	25.924	49.337	46.455	26.720	48.283	27.142	2500
2600	26.070	51.937	47.475	27.499	50.883	27.904	2600
2700	26.211	54.551	48.461	28.257	53.497	28.648	2700
2800	26.347	57.179	49.417	28.996	56.125	29.372	2800
2900	26.480	59.820	50.344	29.716	58.766	30.080	2900
3000	26.609	62.474	51.244	30.419	61.421	30.770	3000
3100	26.736	65.142	52.118	31.105	64.088	31.445	3100
3200	26.860	67.821	52.969	31.775	66.768	32.104	3200
3300	26.982	70.513	53.798	32.430	69.460	32.749	3300
3400	27.102	73.218	54.605	33.070	72.164	33.380	3400
3500	27.220	75.934	55.392	33.697	74.880	33.998	3500
3600	27.337	78.662	56.161	34.310	77.608	34.603	3600
3700	27.453	81.401	56.911	34.911	80.348	35.196	3700
3800	27.568	84.152	57.645	35.500	83.099	35.777	3800
3900	27.681	86.915	58.362	36.077	85.861	36.347	3900
4000	27.794	89.689	59.065	36.643	88.635	36.906	4000
4100	27.906	92.474	59.752	37.198	91.420	37.455	4100
4200	28.017	95.270	60.426	37.743	94.216	37.994	4200
4300	28.128	98.077	61.087	38.278	97.023	38.523	4300
4400	28.238	100.895	61.735	38.804	99.842	39.043	4400
4500	28.347	103.724	62.370	39.321	102.671	39.555	4500
4600	28.456	106.565	62.995	39.828	105.511	40.057	4600
4700	28.565	109.416	63.608	40.328	108.362	40.552	4700
4800	28.674	112.278	64.210	40.819	111.224	41.039	4800
4900	28.782	115.150	64.803	41.303	114.097	41.518	4900
5000	28.890	118.034	65.385	41.778	116.980	41.989	5000

TABLE IX.9. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ca(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.783	INFINITE	0
	200	24.420	3.316	32.519	15.938	-2.467	44.852	200
	298.15	25.750	5.783	42.536	23.140	0.000	42.536	298.15
	300	25.774	5.831	42.696	23.260	0.048	42.537	300
	400	27.108	8.472	50.287	29.106	2.689	43.563	400
	500	28.736	11.263	56.507	33.981	5.480	45.547	500
	600	30.510	14.224	61.901	38.194	8.441	47.832	600
	700	32.402	17.369	66.745	41.932	11.586	50.193	700
α	716	32.708	17.890	67.481	42.495	12.107	50.571	716
β	716	29.955	18.820	68.779	42.495	13.037	50.571	716
	800	30.155	21.341	72.109	45.432	15.558	52.661	800
	900	31.009	24.394	75.704	48.599	18.611	55.025	900
	1000	32.532	27.565	79.044	51.478	21.782	57.261	1000
	1100	34.724	30.923	82.242	54.130	25.140	59.388	1100
β	1115	35.110	31.446	82.715	54.512	25.663	59.698	1115
ℓ	1115	38.000	39.986	90.374	54.512	34.203	59.698	1115
	1200	38.000	43.216	93.166	57.152	37.433	61.971	1200
	1300	38.000	47.016	96.207	60.041	41.233	64.489	1300
	1400	38.000	50.816	99.023	62.726	45.033	66.857	1400
	1500	38.000	54.616	101.645	65.234	48.833	69.089	1500
	1600	38.000	58.416	104.097	67.587	52.633	71.202	1600
	1700	38.000	62.216	106.401	69.803	56.433	73.205	1700
	1800	38.000	66.016	108.573	71.898	60.233	75.110	1800
	1900	38.000	69.816	110.628	73.882	64.033	76.926	1900
	2000	38.000	73.616	112.577	75.769	67.833	78.660	2000
	2100	38.000	77.416	114.431	77.566	71.633	80.320	2100
	2200	38.000	81.216	116.199	79.282	75.433	81.911	2200
	2300	38.000	85.016	117.888	80.924	79.233	83.439	2300
	2400	38.000	88.816	119.505	82.498	83.033	84.908	2400
	2500	38.000	92.616	121.056	84.010	86.833	86.323	2500
	2600	38.000	96.416	122.547	85.464	90.633	87.688	2600
	2700	38.000	100.216	123.981	86.864	94.433	89.006	2700
	2800	38.000	104.016	125.363	88.214	98.233	90.280	2800
	2900	38.000	107.816	126.696	89.518	102.033	91.512	2900
	3000	38.000	111.616	127.985	90.779	105.833	92.707	3000
	3100	38.000	115.416	129.231	92.000	109.633	93.865	3100
	3200	38.000	119.216	130.437	93.182	113.433	94.989	3200
	3300	38.000	123.016	131.606	94.329	117.233	96.081	3300
	3400	38.000	126.816	132.741	95.442	121.033	97.143	3400
	3500	38.000	130.616	133.842	96.523	124.833	98.176	3500
	3600	38.000	134.416	134.913	97.575	128.633	99.181	3600
	3700	38.000	138.216	135.954	98.598	132.433	100.161	3700
	3800	38.000	142.016	136.967	99.595	136.233	101.116	3800
	3900	38.000	145.816	137.954	100.566	140.033	102.048	3900
	4000	38.000	149.616	138.917	101.512	143.833	102.958	4000
	4100	38.000	153.416	139.855	102.436	147.633	103.847	4100
	4200	38.000	157.216	140.771	103.338	151.433	104.715	4200
	4300	38.000	161.016	141.665	104.219	155.233	105.564	4300
	4400	38.000	164.816	142.538	105.080	159.033	106.394	4400
	4500	38.000	168.616	143.392	105.922	162.833	107.207	4500
	4600	38.000	172.416	144.227	106.746	166.633	108.003	4600
	4700	38.000	176.216	145.045	107.552	170.433	108.782	4700
	4800	38.000	180.016	145.845	108.341	174.233	109.546	4800
	4900	38.000	183.816	146.628	109.115	178.033	110.295	4900
	5000	38.000	187.616	147.396	109.873	181.833	111.029	5000
	5100	38.000	191.416	148.148	110.616	185.633	111.750	5100
	5200	38.000	195.216	148.886	111.345	189.433	112.457	5200
	5300	38.000	199.016	149.610	112.060	193.233	113.151	5300
	5400	38.000	202.816	150.320	112.762	197.033	113.833	5400
	5500	38.000	206.616	151.018	113.451	200.833	114.503	5500
	5600	38.000	210.416	151.702	114.128	204.633	115.161	5600
	5700	38.000	214.216	152.375	114.793	208.433	115.808	5700
	5800	38.000	218.016	153.036	115.447	212.233	116.444	5800
	5900	38.000	221.816	153.686	116.090	216.033	117.070	5900
	6000	38.000	225.616	154.324	116.721	219.833	117.685	6000

TABLE IX.10. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Cd(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.247	INFINITE	0
	200	24.909	3.738	41.608	22.917	-2.509	54.152	200
	298.15	26.020	6.247	51.800	30.847	0.000	51.800	298.15
	300	26.035	6.295	51.961	30.977	0.048	51.800	300
	400	27.085	8.948	59.584	37.215	2.701	52.833	400
	500	28.336	11.719	65.763	42.325	5.472	54.819	500
cr	594.26	29.600	14.446	70.757	46.448	8.199	56.960	594.26
ℓ	594.26	29.900	20.506	80.955	46.448	14.259	56.960	594.26
	600	29.900	20.678	81.242	46.779	14.431	57.191	600
	700	29.900	23.668	85.852	52.040	17.421	60.964	700
	800	29.900	26.658	89.844	56.522	20.411	64.330	800
	900	29.900	29.648	93.366	60.424	23.401	67.365	900
	1000	29.900	32.638	96.516	63.878	26.391	70.125	1000
	1100	29.900	35.628	99.366	66.977	29.381	72.656	1100
	1200	29.900	38.618	101.968	69.786	32.371	74.992	1200
	1300	29.900	41.608	104.361	72.355	35.361	77.160	1300
	1400	29.900	44.598	106.577	74.721	38.351	79.183	1400
	1500	29.900	47.588	108.640	76.914	41.341	81.079	1500
	1600	29.900	50.578	110.569	78.958	44.331	82.862	1600
	1700	29.900	53.568	112.382	80.871	47.321	84.546	1700
	1800	29.900	56.558	114.091	82.670	50.311	86.140	1800
	1900	29.900	59.548	115.708	84.367	53.301	87.654	1900
	2000	29.900	62.538	117.241	85.972	56.291	89.096	2000
	2100	29.900	65.528	118.700	87.496	59.281	90.471	2100
	2200	29.900	68.518	120.091	88.946	62.271	91.786	2200
	2300	29.900	71.508	121.420	90.330	65.261	93.046	2300
	2400	29.900	74.498	122.693	91.652	68.251	94.255	2400
	2500	29.900	77.488	123.913	92.918	71.241	95.417	2500
	2600	29.900	80.478	125.086	94.133	74.231	96.536	2600
	2700	29.900	83.468	126.214	95.300	77.221	97.614	2700
	2800	29.900	86.458	127.302	96.424	80.211	98.655	2800
	2900	29.900	89.448	128.351	97.507	83.201	99.661	2900
	3000	29.900	92.438	129.365	98.552	86.191	100.634	3000
	3100	29.900	95.428	130.345	99.562	89.181	101.577	3100
	3200	29.900	98.418	131.294	100.539	92.171	102.491	3200
	3300	29.900	101.408	132.214	101.485	95.161	103.378	3300
	3400	29.900	104.398	133.107	102.402	98.151	104.239	3400
	3500	29.900	107.388	133.974	103.291	101.141	105.076	3500
	3600	29.900	110.378	134.816	104.156	104.131	105.891	3600
	3700	29.900	113.368	135.635	104.995	107.121	106.684	3700
	3800	29.900	116.358	136.433	105.812	110.111	107.456	3800
	3900	29.900	119.348	137.209	106.607	113.101	108.209	3900
	4000	29.900	122.338	137.966	107.382	116.091	108.944	4000
	4100	29.900	125.328	138.705	108.137	119.081	109.661	4100
	4200	29.900	128.318	139.425	108.873	122.071	110.361	4200
	4300	29.900	131.308	140.129	109.592	125.061	111.045	4300
	4400	29.900	134.298	140.816	110.294	128.051	111.714	4400
	4500	29.900	137.288	141.488	110.980	131.041	112.368	4500
	4600	29.900	140.278	142.145	111.650	134.031	113.008	4600
	4700	29.900	143.268	142.788	112.306	137.021	113.635	4700
	4800	29.900	146.258	143.418	112.947	140.011	114.249	4800
	4900	29.900	149.248	144.034	113.575	143.001	114.850	4900
	5000	29.900	152.238	144.638	114.191	145.991	115.440	5000
	5100	29.900	155.228	145.230	114.794	148.981	116.018	5100
	5200	29.900	158.218	145.811	115.384	151.971	116.586	5200
	5300	29.900	161.208	146.381	115.964	154.961	117.143	5300
	5400	29.900	164.198	146.939	116.532	157.951	117.689	5400
	5500	29.900	167.188	147.488	117.090	160.941	118.226	5500
	5600	29.900	170.178	148.027	117.638	163.931	118.753	5600
	5700	29.900	173.168	148.556	118.176	166.921	119.272	5700
	5800	29.900	176.158	149.076	118.704	169.911	119.781	5800
	5900	29.900	179.148	149.587	119.223	172.901	120.282	5900
	6000	29.900	182.138	150.090	119.733	175.891	120.775	6000

TABLE IX.11. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Cl_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-9.181	INFINITE	0
200	31.720	5.950	209.967	180.217	-3.231	226.123	200
298.15	33.949	9.181	223.082	192.288	0.000	223.082	298.15
300	33.981	9.244	223.292	192.479	0.063	223.082	300
400	35.297	12.714	233.265	201.480	3.533	224.433	400
500	36.065	16.285	241.231	208.661	7.104	227.023	500
600	36.547	19.918	247.852	214.657	10.736	229.958	600
700	36.874	23.590	253.512	219.813	14.408	232.929	700
800	37.112	27.289	258.452	224.341	18.108	235.817	800
900	37.294	31.010	262.834	228.379	21.829	238.580	900
1000	37.443	34.747	266.772	232.025	25.566	241.206	1000
1100	37.504	38.493	270.342	235.348	29.312	243.695	1100
1200	37.648	42.251	273.611	238.402	33.069	246.053	1200
1300	37.796	46.023	276.631	241.228	36.842	248.291	1300
1400	37.919	49.809	279.436	243.859	40.628	250.416	1400
1500	38.017	53.606	282.056	246.319	44.425	252.439	1500
1600	38.095	57.412	284.512	248.630	48.230	254.368	1600
1700	38.166	61.225	286.824	250.809	52.044	256.210	1700
1800	38.239	65.045	289.007	252.871	55.864	257.972	1800
1900	38.325	68.873	291.077	254.828	59.692	259.660	1900
2000	38.431	72.710	293.045	256.690	63.529	261.281	2000
2100	38.561	76.560	294.923	258.466	67.379	262.838	2100
2200	38.721	80.424	296.721	260.165	71.243	264.338	2200
2300	38.911	84.305	298.446	261.792	75.124	265.784	2300
2400	39.131	88.207	300.107	263.354	79.026	267.179	2400
2500	39.380	92.132	301.709	264.856	82.951	268.529	2500
2600	39.656	96.084	303.259	266.304	86.903	269.835	2600
2700	39.957	100.064	304.761	267.700	90.883	271.101	2700
2800	40.277	104.076	306.220	269.050	94.895	272.329	2800
2900	40.614	108.120	307.639	270.356	98.939	273.522	2900
3000	40.963	112.199	309.022	271.622	103.018	274.683	3000
3100	41.318	116.313	310.371	272.850	107.132	275.812	3100
3200	41.675	120.463	311.688	274.044	111.282	276.913	3200
3300	42.030	124.648	312.976	275.204	115.467	277.986	3300
3400	42.377	128.868	314.236	276.334	119.687	279.034	3400
3500	42.712	133.123	315.469	277.434	123.942	280.057	3500
3600	43.030	137.410	316.677	278.508	128.229	281.058	3600
3700	43.328	141.728	317.860	279.555	132.547	282.037	3700
3800	43.601	146.075	319.019	280.578	136.894	282.995	3800
3900	43.846	150.448	320.155	281.579	141.267	283.933	3900
4000	44.059	154.843	321.268	282.557	145.662	284.852	4000
4100	44.238	159.258	322.358	283.515	150.077	285.754	4100
4200	44.381	163.690	323.426	284.452	154.508	286.638	4200
4300	44.486	168.133	324.472	285.371	158.952	287.506	4300
4400	44.551	172.585	325.495	286.271	163.404	288.358	4400
4500	44.575	177.042	326.497	287.154	167.861	289.194	4500
4600	44.558	181.499	327.476	288.020	172.318	290.016	4600
4700	44.501	185.952	328.434	288.870	176.771	290.823	4700
4800	44.403	190.398	329.370	289.704	181.217	291.616	4800
4900	44.266	194.832	330.284	290.523	185.650	292.396	4900
5000	44.092	199.250	331.177	291.327	190.069	293.163	5000
5100	43.884	203.649	332.048	292.117	194.468	293.917	5100
5200	43.643	208.026	332.898	292.893	198.844	294.658	5200
5300	43.374	212.377	333.727	293.655	203.196	295.388	5300
5400	43.081	216.700	334.535	294.405	207.518	296.105	5400
5500	42.769	220.992	335.322	295.142	211.811	296.811	5500
5600	42.442	225.253	336.090	295.866	216.072	297.506	5600
5700	42.107	229.480	336.838	296.579	220.299	298.189	5700
5800	41.770	233.674	337.568	297.279	224.493	298.862	5800
5900	41.438	237.834	338.279	297.968	228.653	299.524	5900
6000	41.120	241.962	338.973	298.646	232.781	300.176	6000

TABLE IX.12. - THERMODYNAMIC FUNCTIONS FOR Co(α,β,ℓ)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-4.771	INFINITE	0
200	22.225	2.431	20.579	8.424	-2.340	32.279	200
250	23.985	3.596	25.771	11.387	-1.175	30.471	250
298.15	24.802	4.771	30.067	14.065	0.000	30.067	298.15
300	24.833	4.817	30.221	14.164	0.046	30.067	300
350	25.676	6.080	34.111	16.741	1.309	30.373	350
400	26.532	7.385	37.596	19.134	2.614	31.062	400
450	27.388	8.733	40.770	21.364	3.962	31.967	450
500	28.200	10.123	43.699	23.453	5.352	32.995	500
550	28.943	11.552	46.422	25.419	6.781	34.093	550
600	29.665	13.017	48.971	27.276	8.246	35.228	600
700	31.045	16.054	53.650	30.716	11.283	37.532	700
α 700.10	31.047	16.057	53.654	30.719	11.286	37.534	700.10
β 700.10	30.583	16.509	54.300	30.719	11.738	37.534	700.10
800	32.426	19.656	58.499	33.929	14.885	39.893	800
900	34.552	23.001	62.437	36.880	18.230	42.181	900
1000	36.948	26.574	66.199	39.625	21.803	44.396	1000
1100	39.748	30.404	69.847	42.207	25.633	46.545	1100
1200	43.419	34.553	73.455	44.661	29.782	48.637	1200
1300	48.501	39.135	77.120	47.016	34.364	50.686	1300
1394	55.023	43.986	80.720	49.166	39.215	52.589	1394
1400	44.225	44.283	80.933	49.302	39.512	52.710	1400
1500	39.814	48.456	83.813	51.509	43.685	54.690	1500
1600	38.157	52.337	86.319	53.608	47.566	56.590	1600
1700	37.889	56.133	88.620	55.601	51.362	58.407	1700
β 1768	37.949	58.711	90.107	56.900	53.940	59.598	1768
ℓ 1768	40.501	74.904	99.266	56.900	70.133	59.598	1768
1800	40.501	76.200	99.992	57.659	71.429	60.310	1800
1900	40.501	80.250	102.182	59.945	75.479	62.456	1900
2000	40.501	84.300	104.260	62.110	79.529	64.495	2000
2100	40.501	88.350	106.236	64.164	83.579	66.436	2100
2200	40.501	92.400	108.120	66.120	87.629	68.288	2200
2300	40.501	96.450	109.920	67.985	91.679	70.060	2300
2400	40.501	100.500	111.644	69.769	95.729	71.757	2400
2500	40.501	104.550	113.297	71.477	99.779	73.385	2500
2600	40.501	108.600	114.886	73.116	103.829	74.951	2600
2700	40.501	112.651	116.414	74.692	107.880	76.459	2700
2800	40.501	116.701	117.887	76.208	111.930	77.912	2800
2900	40.501	120.751	119.308	77.670	115.980	79.315	2900
3000	40.501	124.801	120.681	79.081	120.030	80.671	3000
3100	40.501	128.851	122.009	80.444	124.080	81.984	3100
3200	40.501	132.901	123.295	81.764	128.130	83.255	3200
3300	40.501	136.951	124.541	83.041	132.180	84.487	3300
3400	40.501	141.001	125.751	84.280	136.230	85.683	3400
3500	40.501	145.051	126.925	85.481	140.280	86.844	3500
3600	40.501	149.101	128.065	86.648	144.330	87.974	3600
3700	40.501	153.152	129.175	87.783	148.381	89.072	3700
3800	40.501	157.202	130.255	88.886	152.431	90.142	3800
3900	40.501	161.252	131.307	89.961	156.481	91.184	3900
4000	40.501	165.302	132.333	91.007	160.531	92.200	4000
4100	40.501	169.352	133.333	92.027	164.581	93.191	4100
4200	40.501	173.402	134.309	93.023	168.631	94.158	4200
4300	40.501	177.452	135.262	93.994	172.681	95.103	4300
4400	40.501	181.502	136.193	94.942	176.731	96.027	4400
4500	40.501	185.552	137.103	95.869	180.781	96.929	4500
4600	40.501	189.602	137.993	96.775	184.831	97.812	4600
4700	40.501	193.653	138.864	97.662	188.882	98.677	4700
4800	40.501	197.703	139.717	98.529	192.932	99.523	4800
4900	40.501	201.753	140.552	99.378	196.982	100.352	4900
5000	40.501	205.803	141.370	100.210	201.032	101.164	5000
5100	40.501	209.853	142.172	101.025	205.082	101.960	5100
5200	40.501	213.903	142.959	101.824	209.132	102.741	5200
5300	40.501	217.953	143.730	102.607	213.182	103.507	5300
5400	40.501	222.003	144.487	103.376	217.232	104.259	5400
5500	40.501	226.053	145.230	104.130	221.282	104.997	5500
5600	40.501	230.103	145.960	104.870	225.332	105.722	5600
5700	40.501	234.154	146.677	105.597	229.383	106.434	5700
5800	40.501	238.204	147.381	106.312	233.433	107.134	5800
5900	40.501	242.254	148.074	107.014	237.483	107.822	5900
6000	40.501	246.304	148.754	107.704	241.533	108.499	6000

TABLE IX.13. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Cr(cr,ℓ)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-4.057	INFINITE	0
200	19.860	1.894	14.868	5.397	-2.163	25.682	200
298.15	23.434	4.057	23.618	10.011	0.000	23.618	298.15
300	23.467	4.100	23.763	10.095	0.043	23.618	300
400	25.229	6.538	30.764	14.419	2.481	24.561	400
500	26.637	9.134	36.552	18.283	5.077	26.397	500
600	27.710	11.854	41.507	21.750	7.797	28.512	600
700	28.574	14.669	45.845	24.889	10.612	30.685	700
800	29.439	17.569	49.716	27.755	13.512	32.826	800
900	30.498	20.564	53.242	30.393	16.507	34.901	900
1000	31.862	23.679	56.523	32.844	19.622	36.901	1000
1100	33.445	26.942	59.632	35.139	22.885	38.827	1100
1200	35.216	30.374	62.617	37.305	26.317	40.686	1200
1300	37.119	33.990	65.510	39.364	29.933	42.485	1300
1400	39.121	37.801	68.334	41.333	33.744	44.231	1400
1500	41.195	41.817	71.103	43.226	37.760	45.930	1500
1600	43.326	46.042	73.830	45.053	41.985	47.589	1600
1700	45.500	50.483	76.521	46.825	46.426	49.212	1700
1800	47.710	55.143	79.184	48.549	51.086	50.803	1800
1900	49.947	60.026	81.824	50.231	55.969	52.366	1900
2000	52.207	65.134	84.443	51.876	61.077	53.905	2000
2100	54.486	70.468	87.045	53.489	66.411	55.421	2100
cr 2130	55.173	72.113	87.823	53.967	68.056	55.872	2130
ℓ 2130	39.330	92.615	97.448	53.967	88.558	55.872	2130
2200	39.330	95.368	98.720	55.371	91.311	57.215	2200
2300	39.330	99.301	100.469	57.294	95.244	59.058	2300
2400	39.330	103.234	102.142	59.128	99.177	60.819	2400
2500	39.330	107.167	103.748	60.881	103.110	62.504	2500
2600	39.330	111.100	105.290	62.560	107.043	64.120	2600
2700	39.330	115.033	106.775	64.170	110.976	65.673	2700
2800	39.330	118.966	108.205	65.717	114.909	67.166	2800
2900	39.330	122.899	109.585	67.206	118.842	68.605	2900
3000	39.330	126.832	110.919	68.641	122.775	69.994	3000
3100	39.330	130.765	112.208	70.026	126.708	71.335	3100
3200	39.330	134.698	113.457	71.364	130.641	72.632	3200
3300	39.330	138.631	114.667	72.658	134.574	73.887	3300
3400	39.330	142.564	115.841	73.911	138.507	75.104	3400
3500	39.330	146.497	116.981	75.125	142.440	76.284	3500
3600	39.330	150.430	118.089	76.303	146.373	77.430	3600
3700	39.330	154.363	119.167	77.447	150.306	78.544	3700
3800	39.330	158.296	120.216	78.559	154.239	79.627	3800
3900	39.330	162.229	121.237	79.640	158.172	80.680	3900
4000	39.330	166.162	122.233	80.693	162.105	81.707	4000
4100	39.330	170.095	123.204	81.718	166.038	82.707	4100
4200	39.330	174.028	124.152	82.717	169.971	83.683	4200
4300	39.330	177.961	125.078	83.691	173.904	84.635	4300
4400	39.330	181.894	125.982	84.642	177.837	85.564	4400
4500	39.330	185.827	126.866	85.571	181.770	86.472	4500
4600	39.330	189.760	127.730	86.478	185.703	87.360	4600
4700	39.330	193.693	128.576	87.365	189.636	88.228	4700
4800	39.330	197.626	129.404	88.232	193.569	89.077	4800
4900	39.330	201.559	130.215	89.080	197.502	89.908	4900
5000	39.330	205.492	131.009	89.911	201.435	90.722	5000
5100	39.330	209.425	131.788	90.724	205.368	91.520	5100
5200	39.330	213.358	132.552	91.522	209.301	92.302	5200
5300	39.330	217.291	133.301	92.303	213.234	93.068	5300
5400	39.330	221.224	134.036	93.069	217.167	93.820	5400
5500	39.330	225.157	134.758	93.820	221.100	94.558	5500
5600	39.330	229.090	135.467	94.558	225.033	95.282	5600
5700	39.330	233.023	136.163	95.281	228.966	95.993	5700
5800	39.330	236.956	136.847	95.992	232.899	96.692	5800
5900	39.330	240.889	137.519	96.690	236.832	97.378	5900
6000	39.330	244.822	138.180	97.376	240.765	98.053	6000

TABLE IX.14. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Cs(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.711	INFINITE	0
	100	25.822	2.144	55.052	33.607	-5.567	110.717	100
	200	27.784	4.826	73.549	49.419	-2.885	87.974	200
	298.15	32.210	7.711	85.230	59.367	0.000	85.230	298.15
	300	32.376	7.771	85.430	59.527	0.060	85.231	300
cr	301.59	32.522	7.822	85.601	59.664	0.111	85.232	301.59
ℓ	301.59	32.635	9.918	92.551	59.664	2.207	85.232	301.59
	400	32.024	13.108	101.708	68.938	5.397	88.216	400
	500	30.955	16.257	108.740	76.226	8.546	91.648	500
	600	30.001	19.303	114.296	82.124	11.592	94.976	600
	700	29.361	22.268	118.868	87.056	14.557	98.072	700
	800	29.115	25.188	122.768	91.282	17.477	100.921	800
	900	29.304	28.106	126.203	94.975	20.395	103.543	900
	1000	29.948	31.064	129.320	98.256	23.353	105.967	1000
	1100	31.059	34.111	132.223	101.213	26.400	108.223	1100
	1200	32.643	37.292	134.990	103.913	29.581	110.339	1200
	1300	34.707	40.655	137.681	106.408	32.944	112.339	1300
	1400	37.251	44.249	140.343	108.737	36.538	114.244	1400
	1500	40.278	48.122	143.014	110.933	40.411	116.073	1500
	1600	43.790	52.321	145.723	113.022	44.610	117.841	1600
	1700	47.788	56.896	148.495	115.027	49.185	119.563	1700
	1800	52.273	61.895	151.351	116.965	54.184	121.249	1800
	1900	57.244	67.367	154.308	118.852	59.656	122.911	1900
	2000	62.702	73.360	157.381	120.701	65.649	124.557	2000

TABLE IX.15. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Cu(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.004	INFINITE	0
	200	22.627	2.679	23.717	10.320	-2.325	35.340	200
	298.15	24.440	5.004	33.150	16.367	0.000	33.150	298.15
	300	24.461	5.049	33.301	16.470	0.045	33.150	300
	400	25.344	7.543	40.469	21.612	2.539	34.122	400
	500	25.963	10.110	46.194	25.975	5.106	35.983	500
	600	26.475	12.732	50.974	29.754	7.728	38.094	600
	700	26.952	15.403	55.091	33.086	10.399	40.234	700
	800	27.448	18.123	58.722	36.068	13.119	42.323	800
	900	28.015	20.895	61.986	38.769	15.891	44.329	900
	1000	28.700	23.730	64.972	41.242	18.726	46.246	1000
	1100	29.552	26.641	67.746	43.527	21.637	48.076	1100
	1200	30.617	29.647	70.361	45.655	24.643	49.825	1200
	1300	31.940	32.773	72.862	47.652	27.769	51.502	1300
cr	1358	32.844	34.651	74.276	48.759	29.647	52.444	1358
ℓ	1358	32.800	47.791	83.952	48.759	42.787	52.444	1358
	1400	32.800	49.169	84.951	49.830	44.165	53.405	1400
	1500	32.800	52.449	87.214	52.248	47.445	55.584	1500
	1600	32.800	55.729	89.331	54.500	50.725	57.628	1600
	1700	32.800	59.009	91.319	56.608	54.005	59.552	1700
	1800	32.800	62.289	93.194	58.589	57.285	61.369	1800
	1900	32.800	65.569	94.967	60.457	60.565	63.091	1900
	2000	32.800	68.849	96.650	62.225	63.845	64.727	2000
	2100	32.800	72.129	98.250	63.903	67.125	66.286	2100
	2200	32.800	75.409	99.776	65.499	70.405	67.774	2200
	2300	32.800	78.689	101.234	67.021	73.685	69.197	2300
	2400	32.800	81.969	102.630	68.476	76.965	70.561	2400
	2500	32.800	85.249	103.969	69.869	80.245	71.871	2500
	2600	32.800	88.529	105.255	71.206	83.525	73.130	2600
	2700	32.800	91.809	106.493	72.490	86.805	74.343	2700
	2800	32.800	95.089	107.686	73.726	90.085	75.513	2800
	2900	32.800	98.369	108.837	74.917	93.365	76.642	2900
	3000	32.800	101.649	109.949	76.066	96.645	77.734	3000
	3100	32.800	104.929	111.024	77.176	99.925	78.791	3100
	3200	32.800	108.209	112.066	78.251	103.205	79.814	3200
	3300	32.800	111.489	113.075	79.291	106.485	80.807	3300
	3400	32.800	114.769	114.054	80.299	109.765	81.771	3400
	3500	32.800	118.049	115.005	81.277	113.045	82.707	3500
	3600	32.800	121.329	115.929	82.227	116.325	83.617	3600
	3700	32.800	124.609	116.828	83.150	119.605	84.502	3700
	3800	32.800	127.889	117.703	84.048	122.885	85.364	3800
	3900	32.800	131.169	118.555	84.922	126.165	86.205	3900
	4000	32.800	134.449	119.385	85.773	129.445	87.024	4000
	4100	32.800	137.729	120.195	86.602	132.725	87.823	4100
	4200	32.800	141.009	120.985	87.412	136.005	88.603	4200
	4300	32.800	144.289	121.757	88.202	139.285	89.365	4300
	4400	32.800	147.569	122.511	88.973	142.565	90.110	4400
	4500	32.800	150.849	123.248	89.726	145.845	90.838	4500
	4600	32.800	154.129	123.969	90.463	149.125	91.551	4600
	4700	32.800	157.409	124.675	91.183	152.405	92.248	4700
	4800	32.800	160.689	125.365	91.888	155.685	92.931	4800
	4900	32.800	163.969	126.041	92.578	158.965	93.600	4900
	5000	32.800	167.249	126.704	93.254	162.245	94.255	5000
	5100	32.800	170.529	127.354	93.917	165.525	94.898	5100
	5200	32.800	173.809	127.991	94.566	168.805	95.528	5200
	5300	32.800	177.089	128.615	95.202	172.085	96.146	5300
	5400	32.800	180.369	129.228	95.827	175.365	96.753	5400
	5500	32.800	183.649	129.830	96.440	178.645	97.349	5500
	5600	32.800	186.929	130.421	97.041	181.925	97.935	5600
	5700	32.800	190.209	131.002	97.632	185.205	98.510	5700
	5800	32.800	193.489	131.572	98.212	188.485	99.075	5800
	5900	32.800	196.769	132.133	98.782	191.765	99.630	5900
	6000	32.800	200.049	132.684	99.343	195.045	100.177	6000

TABLE IX.16. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR D_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.569	INFINITE	0
200	29.206	5.705	133.306	104.784	-2.865	147.629	200
298.15	29.195	8.569	144.960	116.219	0.000	144.960	298.15
300	29.196	8.623	145.140	116.397	0.054	144.960	300
400	29.243	11.545	153.545	124.683	2.976	146.106	400
500	29.368	14.474	160.082	131.133	5.905	148.271	500
600	29.624	17.423	165.457	136.419	8.854	150.701	600
700	30.011	20.403	170.051	140.903	11.834	153.144	700
800	30.504	23.429	174.089	144.804	14.859	155.515	800
900	31.063	26.506	177.714	148.262	17.937	157.784	900
1000	31.641	29.642	181.017	151.375	21.073	159.944	1000
1100	32.212	32.834	184.059	154.210	24.265	162.000	1100
1200	32.767	36.084	186.886	156.816	27.514	163.957	1200
1300	33.289	39.387	189.530	159.232	30.818	165.824	1300
1400	33.775	42.740	192.015	161.486	34.171	167.607	1400
1500	34.224	46.140	194.360	163.600	37.571	169.313	1500
1600	34.636	49.584	196.583	165.593	41.015	170.948	1600
1700	35.016	53.067	198.694	167.478	44.498	172.519	1700
1800	35.366	56.586	200.705	169.269	48.017	174.029	1800
1900	35.689	60.139	202.626	170.974	51.570	175.484	1900
2000	35.988	63.723	204.465	172.603	55.154	176.888	2000
2100	36.266	67.336	206.227	174.163	58.767	178.243	2100
2200	36.525	70.975	207.920	175.659	62.406	179.554	2200
2300	36.768	74.640	209.549	177.097	66.071	180.823	2300
2400	36.998	78.329	211.119	178.482	69.760	182.053	2400
2500	37.215	82.039	212.634	179.818	73.470	183.246	2500
2600	37.421	85.771	214.098	181.109	77.202	184.404	2600
2700	37.619	89.523	215.514	182.357	80.954	185.531	2700
2800	37.809	93.295	216.885	183.566	84.726	186.626	2800
2900	37.993	97.085	218.215	184.738	88.516	187.692	2900
3000	38.171	100.893	219.506	185.875	92.324	188.731	3000
3100	38.344	104.719	220.761	186.980	96.150	189.745	3100
3200	38.514	108.562	221.981	188.055	99.993	190.733	3200
3300	38.681	112.422	223.168	189.101	103.853	191.698	3300
3400	38.845	116.298	224.326	190.120	107.729	192.641	3400
3500	39.007	120.191	225.454	191.114	111.621	193.562	3500
3600	39.168	124.099	226.555	192.083	115.530	194.463	3600
3700	39.327	128.024	227.630	193.029	119.455	195.345	3700
3800	39.485	131.965	228.681	193.954	123.396	196.209	3800
3900	39.641	135.921	229.709	194.857	127.352	197.055	3900
4000	39.797	139.893	230.715	195.741	131.324	197.884	4000
4100	39.952	143.880	231.699	196.606	135.311	198.696	4100
4200	40.106	147.883	232.664	197.453	139.314	199.494	4200
4300	40.258	151.901	233.609	198.283	143.332	200.276	4300
4400	40.409	155.935	234.536	199.097	147.366	201.044	4400
4500	40.559	159.983	235.446	199.894	151.414	201.799	4500
4600	40.706	164.046	236.339	200.677	155.477	202.540	4600
4700	40.851	168.124	237.216	201.445	159.555	203.268	4700
4800	40.994	172.217	238.078	202.199	163.647	203.985	4800
4900	41.133	176.323	238.925	202.940	167.754	204.689	4900
5000	41.268	180.443	239.757	203.668	171.874	205.382	5000
5100	41.399	184.576	240.575	204.384	176.007	206.064	5100
5200	41.525	188.723	241.381	205.088	180.154	206.736	5200
5300	41.646	192.881	242.173	205.780	184.312	207.397	5300
5400	41.760	197.052	242.952	206.461	188.483	208.048	5400
5500	41.868	201.233	243.719	207.132	192.664	208.690	5500
5600	41.967	205.425	244.475	207.792	196.856	209.322	5600
5700	42.058	209.626	245.218	208.442	201.057	209.945	5700
5800	42.139	213.836	245.951	209.082	205.267	210.560	5800
5900	42.209	218.054	246.672	209.713	209.485	211.166	5900
6000	42.268	222.278	247.381	210.335	213.709	211.763	6000
6200	42.371	230.742	248.769	211.553	222.173	212.935	6200
6400	42.438	239.224	250.116	212.737	230.654	214.076	6400
6600	42.465	247.715	251.422	213.889	239.145	215.188	6600
6800	42.452	256.207	252.690	215.012	247.638	216.272	6800
7000	42.398	264.693	253.919	216.106	256.124	217.330	7000
7200	42.304	273.164	255.113	217.173	264.594	218.363	7200
7400	42.171	281.612	256.270	218.214	273.043	219.372	7400
7600	42.003	290.030	257.392	219.231	281.461	220.358	7600
7800	41.801	298.411	258.481	220.223	289.842	221.322	7800
8000	41.569	306.748	259.536	221.193	298.179	222.264	8000

TABLE IX.16. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.310	315.037	260.560	222.141	306.468	223.186	8200
8400	41.027	323.271	261.552	223.067	314.702	224.087	8400
8600	40.722	331.446	262.514	223.974	322.877	224.970	8600
8800	40.398	339.558	263.446	224.860	330.989	225.834	8800
9000	40.059	347.604	264.350	225.728	339.035	226.680	9000
9200	39.706	355.581	265.227	226.577	347.012	227.508	9200
9400	39.342	363.486	266.077	227.408	354.916	228.320	9400
9600	38.970	371.317	266.901	228.222	362.748	229.115	9600
9800	38.591	379.073	267.701	229.020	370.504	229.894	9800
10000	38.207	386.753	268.477	229.801	378.184	230.658	10000
10500	37.239	405.615	270.318	231.688	397.046	232.504	10500
11000	36.275	423.993	272.028	233.483	415.424	234.262	11000
11500	35.333	441.894	273.619	235.194	433.324	235.939	11500
12000	34.426	459.332	275.104	236.826	450.763	237.540	12000
12500	33.561	476.327	276.491	238.385	467.757	239.071	12500
13000	32.746	492.901	277.792	239.876	484.332	240.535	13000
13500	31.981	509.081	279.013	241.303	500.512	241.938	13500
14000	31.268	524.891	280.163	242.671	516.322	243.283	14000
14500	30.605	540.357	281.248	243.982	531.788	244.573	14500
15000	29.990	555.503	282.275	245.242	546.934	245.813	15000
15500	29.421	570.355	283.249	246.452	561.785	247.005	15500
16000	28.894	584.932	284.175	247.617	576.363	248.152	16000
16500	28.405	599.255	285.057	248.738	590.686	249.257	16500
17000	27.952	613.343	285.898	249.819	604.774	250.323	17000
17500	27.531	627.212	286.702	250.861	618.643	251.351	17500
18000	27.140	640.879	287.472	251.868	632.310	252.344	18000
18500	26.778	654.357	288.211	252.840	645.788	253.303	18500
19000	26.443	667.661	288.920	253.780	659.092	254.231	19000
19500	26.136	680.805	289.603	254.690	672.236	255.129	19500
20000	25.859	693.803	290.261	255.571	685.233	255.999	20000

TABLE IX.17. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Electron Gas

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	12.679	-8.107	-2.040	22.880	200
298.15	20.786	6.197	20.979	0.193	0.000	20.979	298.15
300	20.786	6.236	21.108	0.321	0.038	20.979	300
400	20.786	8.315	27.087	6.301	2.117	21.795	400
500	20.786	10.393	31.726	10.939	4.196	23.334	500
600	20.786	12.472	35.516	14.729	6.274	25.058	600
700	20.786	14.550	38.720	17.933	8.353	26.787	700
800	20.786	16.629	41.495	20.709	10.432	28.456	800
900	20.786	18.708	43.944	23.157	12.510	30.043	900
1000	20.786	20.786	46.134	25.347	14.589	31.545	1000
1100	20.786	22.865	48.115	27.329	16.667	32.963	1100
1200	20.786	24.944	49.923	29.137	18.746	34.302	1200
1300	20.786	27.022	51.587	30.801	20.825	35.568	1300
1400	20.786	29.101	53.128	32.341	22.903	36.768	1400
1500	20.786	31.179	54.562	33.776	24.982	37.907	1500
1600	20.786	33.258	55.903	35.117	27.061	38.990	1600
1700	20.786	35.337	57.163	36.377	29.139	40.023	1700
1800	20.786	37.415	58.352	37.565	31.218	41.008	1800
1900	20.786	39.494	59.475	38.689	33.296	41.951	1900
2000	20.786	41.573	60.542	39.755	35.375	42.854	2000
2100	20.786	43.651	61.556	40.770	37.454	43.721	2100
2200	20.786	45.730	62.523	41.737	39.532	44.554	2200
2300	20.786	47.808	63.447	42.660	41.611	45.355	2300
2400	20.786	49.887	64.331	43.545	43.690	46.127	2400
2500	20.786	51.966	65.180	44.394	45.768	46.873	2500
2600	20.786	54.044	65.995	45.209	47.847	47.593	2600
2700	20.786	56.123	66.780	45.993	49.926	48.289	2700
2800	20.786	58.202	67.536	46.749	52.004	48.963	2800
2900	20.786	60.280	68.265	47.479	54.083	49.616	2900
3000	20.786	62.359	68.970	48.183	56.161	50.249	3000
3100	20.786	64.437	69.651	48.865	58.240	50.864	3100
3200	20.786	66.516	70.311	49.525	60.319	51.462	3200
3300	20.786	68.595	70.951	50.165	62.397	52.043	3300
3400	20.786	70.673	71.571	50.785	64.476	52.608	3400
3500	20.786	72.752	72.174	51.388	66.555	53.158	3500
3600	20.786	74.831	72.760	51.973	68.633	53.695	3600
3700	20.786	76.909	73.329	52.543	70.712	54.218	3700
3800	20.786	78.988	73.883	53.097	72.790	54.728	3800
3900	20.786	81.066	74.423	53.637	74.869	55.226	3900
4000	20.786	83.145	74.950	54.163	76.948	55.713	4000
4100	20.786	85.224	75.463	54.677	79.026	56.188	4100
4200	20.786	87.302	75.964	55.177	81.105	56.653	4200
4300	20.786	89.381	76.453	55.667	83.184	57.108	4300
4400	20.786	91.460	76.931	56.144	85.262	57.553	4400
4500	20.786	93.538	77.398	56.612	87.341	57.989	4500
4600	20.786	95.617	77.855	57.068	89.419	58.416	4600
4700	20.786	97.695	78.302	57.515	91.498	58.834	4700
4800	20.786	99.774	78.739	57.953	93.577	59.244	4800
4900	20.786	101.853	79.168	58.382	95.655	59.646	4900
5000	20.786	103.931	79.588	58.802	97.734	60.041	5000
5100	20.786	106.010	80.000	59.213	99.813	60.428	5100
5200	20.786	108.089	80.403	59.617	101.891	60.809	5200
5300	20.786	110.167	80.799	60.013	103.970	61.182	5300
5400	20.786	112.246	81.188	60.401	106.048	61.549	5400
5500	20.786	114.325	81.569	60.783	108.127	61.910	5500
5600	20.786	116.403	81.944	61.157	110.206	62.264	5600
5700	20.786	118.482	82.311	61.525	112.284	62.612	5700
5800	20.786	120.560	82.673	61.887	114.363	62.955	5800
5900	20.786	122.639	83.028	62.242	116.442	63.292	5900
6000	20.786	124.718	83.378	62.591	118.520	63.624	6000
6200	20.786	128.875	84.059	63.273	122.677	64.273	6200
6400	20.786	133.032	84.719	63.933	126.835	64.901	6400
6600	20.786	137.189	85.359	64.573	130.992	65.512	6600
6800	20.786	141.347	85.979	65.193	135.149	66.104	6800
7000	20.786	145.504	86.582	65.796	139.306	66.681	7000
7200	20.786	149.661	87.167	66.381	143.464	67.242	7200
7400	20.786	153.818	87.737	66.951	147.621	67.788	7400
7600	20.786	157.976	88.291	67.505	151.778	68.321	7600
7800	20.786	162.133	88.831	68.045	155.936	68.840	7800
8000	20.786	166.290	89.358	68.571	160.093	69.346	8000

TABLE IX.17. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.786	170.447	89.871	69.085	164.250	69.840	8200
8400	20.786	174.605	90.372	69.585	168.407	70.323	8400
8600	20.786	178.762	90.861	70.075	172.565	70.795	8600
8800	20.786	182.919	91.339	70.552	176.722	71.257	8800
9000	20.786	187.076	91.806	71.020	180.879	71.708	9000
9200	20.786	191.234	92.263	71.476	185.036	72.150	9200
9400	20.786	195.391	92.710	71.923	189.194	72.583	9400
9600	20.786	199.548	93.147	72.361	193.351	73.007	9600
9800	20.786	203.705	93.576	72.790	197.508	73.422	9800
10000	20.786	207.863	93.996	73.210	201.665	73.829	10000
10500	20.786	218.256	95.010	74.224	212.058	74.814	10500
11000	20.786	228.649	95.977	75.191	222.452	75.754	11000
11500	20.786	239.042	96.901	76.115	232.845	76.654	11500
12000	20.786	249.435	97.786	76.999	243.238	77.516	12000
12500	20.786	259.828	98.634	77.848	253.631	78.344	12500
13000	20.786	270.222	99.449	78.663	264.024	79.140	13000
13500	20.786	280.615	100.234	79.448	274.417	79.907	13500
14000	20.786	291.008	100.990	80.204	284.810	80.646	14000
14500	20.786	301.401	101.719	80.933	295.204	81.360	14500
15000	20.786	311.794	102.424	81.638	305.597	82.051	15000
15500	20.786	322.187	103.106	82.319	315.990	82.719	15500
16000	20.786	332.580	103.765	82.979	326.383	83.367	16000
16500	20.786	342.974	104.405	83.619	336.776	83.994	16500
17000	20.786	353.367	105.026	84.239	347.169	84.604	17000
17500	20.786	363.760	105.628	84.842	357.562	85.196	17500
18000	20.786	374.153	106.214	85.427	367.956	85.772	18000
18500	20.786	384.546	106.783	85.997	378.349	86.332	18500
19000	20.786	394.939	107.338	86.551	388.742	86.878	19000
19500	20.786	405.332	107.878	87.091	399.135	87.409	19500
20000	20.786	415.726	108.404	87.618	409.528	87.927	20000

TABLE IX.18. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR F_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.825	INFINITE	0
200	29.687	5.837	190.658	161.474	-2.988	205.599	200
298.15	31.304	8.825	202.792	173.193	0.000	202.792	298.15
300	31.338	8.883	202.986	173.376	0.058	202.793	300
400	32.992	12.102	212.236	181.980	3.277	204.043	400
500	34.259	15.468	219.742	188.805	6.643	206.455	500
600	35.174	18.942	226.073	194.503	10.117	209.211	600
700	35.838	22.495	231.548	199.413	13.670	212.020	700
800	36.341	26.105	236.368	203.737	17.280	214.768	800
900	36.743	29.760	240.672	207.606	20.935	217.411	900
1000	37.065	33.451	244.561	211.110	24.626	219.935	1000
1100	37.352	37.172	248.107	214.314	28.347	222.337	1100
1200	37.584	40.919	251.368	217.268	32.094	224.622	1200
1300	37.798	44.688	254.384	220.009	35.863	226.797	1300
1400	38.006	48.479	257.193	222.566	39.654	228.869	1400
1500	38.208	52.290	259.822	224.963	43.464	230.846	1500
1600	38.399	56.120	262.294	227.219	47.295	232.735	1600
1700	38.574	59.969	264.628	229.352	51.144	234.543	1700
1800	38.728	63.834	266.837	231.374	55.009	236.276	1800
1900	38.854	67.714	268.934	233.296	58.888	237.941	1900
2000	38.949	71.604	270.930	235.128	62.779	239.541	2000
2100	39.011	75.502	272.832	236.878	66.677	241.081	2100
2200	39.037	79.405	274.647	238.554	70.580	242.566	2200
2300	39.027	83.308	276.383	240.162	74.483	243.999	2300
2400	38.980	87.209	278.043	241.706	78.384	245.383	2400
2500	38.898	91.103	279.632	243.191	82.278	246.721	2500
2600	38.780	94.987	281.156	244.622	86.162	248.017	2600
2700	38.630	98.858	282.617	246.003	90.033	249.271	2700
2800	38.448	102.712	284.018	247.335	93.887	250.487	2800
2900	38.238	106.547	285.364	248.624	97.722	251.667	2900
3000	38.000	110.359	286.656	249.870	101.534	252.812	3000
3100	37.739	114.146	287.898	251.077	105.321	253.924	3100
3200	37.456	117.906	289.092	252.246	109.081	255.004	3200
3300	37.154	121.637	290.240	253.380	112.812	256.055	3300
3400	36.837	125.336	291.344	254.481	116.511	257.076	3400
3500	36.505	129.004	292.407	255.549	120.178	258.071	3500
3600	36.163	132.637	293.431	256.587	123.812	259.039	3600
3700	35.813	136.236	294.417	257.597	127.411	259.982	3700
3800	35.457	139.799	295.368	258.578	130.974	260.901	3800
3900	35.097	143.327	296.284	259.533	134.502	261.796	3900
4000	34.736	146.819	297.168	260.463	137.994	262.670	4000
4100	34.375	150.274	298.021	261.369	141.449	263.521	4100
4200	34.017	153.694	298.845	262.251	144.869	264.353	4200
4300	33.663	157.078	299.642	263.112	148.253	265.164	4300
4400	33.314	160.427	300.411	263.951	151.602	265.957	4400
4500	32.971	163.741	301.156	264.769	154.916	266.731	4500
4600	32.637	167.021	301.877	265.568	158.196	267.487	4600
4700	32.311	170.269	302.576	266.348	161.443	268.226	4700
4800	31.993	173.484	303.253	267.110	164.659	268.949	4800
4900	31.686	176.668	303.909	267.854	167.842	269.655	4900
5000	31.388	179.821	304.546	268.582	170.996	270.347	5000
5100	31.099	182.945	305.165	269.293	174.120	271.024	5100
5200	30.819	186.041	305.766	269.989	177.216	271.686	5200
5300	30.548	189.110	306.350	270.669	180.284	272.335	5300
5400	30.284	192.151	306.919	271.335	183.326	272.970	5400
5500	30.027	195.167	307.472	271.988	186.341	273.592	5500
5600	29.775	198.157	308.011	272.626	189.332	274.202	5600
5700	29.526	201.122	308.536	273.251	192.297	274.800	5700
5800	29.279	204.062	309.047	273.864	195.237	275.386	5800
5900	29.032	206.978	309.546	274.465	198.152	275.961	5900
6000	28.782	209.868	310.032	275.054	201.043	276.524	6000

TABLE IX.19. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Fe(α,γ,δ,ℓ)

	T K	C_p° J/mol-K	$H^\circ(T)-H^\circ(0)$ kJ/mol	$S^\circ(T)$ J/mol-K	$-\{G^\circ(T)-H^\circ(0)\}/T$ J/mol-K	$H^\circ(T)$ kJ/mol	$-G^\circ(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.507	INFINITE	0
	200	21.588	2.192	17.948	6.990	-2.315	29.525	200
	298.15	25.094	4.507	27.321	12.204	0.000	27.321	298.15
	300	25.139	4.553	27.476	12.298	0.046	27.321	300
	400	27.387	7.181	35.021	17.068	2.674	28.335	400
	500	29.702	10.034	41.377	21.309	5.527	30.323	500
	600	32.047	13.120	46.996	25.130	8.613	32.642	600
	700	34.599	16.449	52.123	28.625	11.942	35.063	700
	800	37.948	20.066	56.948	31.866	15.559	37.499	800
	900	43.080	24.140	61.740	34.917	19.633	39.925	900
	1000	54.391	28.684	66.518	37.835	24.177	42.342	1000
	1100	46.315	35.115	72.658	40.735	30.608	44.833	1100
α	1184	41.410	38.428	75.562	43.106	33.921	46.913	1184
γ	1184	33.882	39.328	76.323	43.106	34.821	46.913	1184
	1200	33.937	39.870	76.778	43.552	35.363	47.308	1200
	1300	34.657	43.296	79.519	46.215	38.789	49.682	1300
	1400	35.598	46.809	82.122	48.687	42.302	51.907	1400
	1500	36.475	50.413	84.609	51.000	45.906	54.004	1500
	1600	37.303	54.102	86.989	53.175	49.595	55.992	1600
γ	1665	37.913	56.546	88.486	54.525	52.039	57.231	1665
δ	1665	41.112	57.383	88.989	54.525	52.876	57.231	1665
	1700	41.406	58.827	89.847	55.243	54.320	57.894	1700
	1800	42.450	63.017	92.242	57.232	58.510	59.736	1800
δ	1809	42.557	63.400	92.454	57.407	58.893	59.898	1809
ℓ	1809	46.024	77.207	100.086	57.407	72.700	59.898	1809
	1900	46.024	81.395	102.345	59.506	76.888	61.878	1900
	2000	46.024	85.997	104.706	61.707	81.490	63.961	2000
	2100	46.024	90.600	106.951	63.809	86.093	65.955	2100
	2200	46.024	95.202	109.092	65.819	90.695	67.867	2200
	2300	46.024	99.804	111.138	67.745	95.297	69.704	2300
	2400	46.024	104.407	113.097	69.594	99.900	71.472	2400
	2500	46.024	109.009	114.976	71.372	104.502	73.175	2500
	2600	46.024	113.612	116.781	73.084	109.105	74.817	2600
	2700	46.024	118.214	118.518	74.735	113.707	76.404	2700
	2800	46.024	122.816	120.192	76.329	118.309	77.938	2800
	2900	46.024	127.419	121.807	77.869	122.912	79.423	2900
	3000	46.024	132.021	123.367	79.360	127.514	80.862	3000
	3100	46.024	136.624	124.876	80.804	132.117	82.258	3100
	3200	46.024	141.226	126.337	82.204	136.719	83.612	3200
	3300	46.024	145.828	127.753	83.563	141.321	84.929	3300
	3400	46.024	150.431	129.127	84.883	145.924	86.209	3400
	3500	46.024	155.033	130.461	86.166	150.526	87.454	3500
	3600	46.024	159.636	131.758	87.415	155.129	88.667	3600
	3700	46.024	164.238	133.019	88.630	159.731	89.848	3700
	3800	46.024	168.840	134.246	89.815	164.333	91.001	3800
	3900	46.024	173.443	135.442	90.969	168.936	92.125	3900
	4000	46.024	178.045	136.607	92.096	173.538	93.223	4000
	4100	46.024	182.648	137.744	93.195	178.141	94.295	4100
	4200	46.024	187.250	138.853	94.269	182.743	95.342	4200
	4300	46.024	191.852	139.936	95.319	187.345	96.367	4300
	4400	46.024	196.455	140.994	96.345	191.948	97.369	4400
	4500	46.024	201.057	142.028	97.349	196.550	98.350	4500
	4600	46.024	205.660	143.040	98.331	201.153	99.311	4600
	4700	46.024	210.262	144.029	99.293	205.755	100.252	4700
	4800	46.024	214.864	144.998	100.235	210.357	101.174	4800
	4900	46.024	219.467	145.947	101.158	214.960	102.078	4900
	5000	46.024	224.069	146.877	102.063	219.562	102.965	5000
	5100	46.024	228.672	147.788	102.951	224.165	103.835	5100
	5200	46.024	233.274	148.682	103.822	228.767	104.689	5200
	5300	46.024	237.876	149.559	104.677	233.369	105.527	5300
	5400	46.024	242.479	150.419	105.516	237.972	106.350	5400
	5500	46.024	247.081	151.264	106.340	242.574	107.159	5500
	5600	46.024	251.684	152.093	107.149	247.177	107.954	5600
	5700	46.024	256.286	152.908	107.945	251.779	108.736	5700
	5800	46.024	260.888	153.708	108.727	256.381	109.504	5800
	5900	46.024	265.491	154.495	109.496	260.984	110.260	5900
	6000	46.024	270.093	155.268	110.253	265.586	111.004	6000

TABLE IX.20. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ge(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.636	INFINITE	0
	200	21.130	2.436	22.167	9.984	-2.200	33.166	200
	298.15	23.222	4.636	31.090	15.540	0.000	31.090	298.15
	300	23.246	4.679	31.234	15.636	0.043	31.090	300
	400	24.310	7.063	38.083	20.426	2.426	32.017	400
	500	24.962	9.528	43.582	24.525	4.892	33.798	500
	600	25.453	12.050	48.178	28.095	7.414	35.822	600
	700	25.867	14.616	52.133	31.253	9.980	37.876	700
	800	26.241	17.222	55.612	34.085	12.586	39.880	800
	900	26.591	19.864	58.723	36.652	15.227	41.804	900
	1000	26.926	22.540	61.542	39.003	17.903	43.639	1000
	1100	27.252	25.249	64.124	41.171	20.612	45.385	1100
	1200	27.571	27.990	66.509	43.184	23.353	47.048	1200
cr	1211.40	27.607	28.304	66.770	43.405	23.668	47.232	1211.40
ℓ	1211.40	27.600	65.334	97.338	43.405	60.698	47.232	1211.40
	1300	27.600	67.780	99.286	47.148	63.143	50.714	1300
	1400	27.600	70.540	101.331	50.946	65.903	54.257	1400
	1500	27.600	73.300	103.235	54.369	68.663	57.460	1500
	1600	27.600	76.060	105.017	57.479	71.423	60.377	1600
	1700	27.600	78.820	106.690	60.325	74.183	63.053	1700
	1800	27.600	81.580	108.267	62.945	76.943	65.521	1800
	1900	27.600	84.340	109.760	65.370	79.703	67.811	1900
	2000	27.600	87.100	111.175	67.626	82.463	69.944	2000
	2100	27.600	89.860	112.522	69.732	85.223	71.940	2100
	2200	27.600	92.620	113.806	71.706	87.983	73.814	2200
	2300	27.600	95.380	115.033	73.563	90.743	75.579	2300
	2400	27.600	98.140	116.207	75.316	93.503	77.248	2400
	2500	27.600	100.900	117.334	76.974	96.263	78.829	2500
	2600	27.600	103.660	118.417	78.548	99.023	80.331	2600
	2700	27.600	106.420	119.458	80.044	101.783	81.761	2700
	2800	27.600	109.180	120.462	81.469	104.543	83.125	2800
	2900	27.600	111.940	121.431	82.831	107.303	84.429	2900
	3000	27.600	114.700	122.366	84.133	110.063	85.678	3000
	3100	27.600	117.460	123.271	85.381	112.823	86.877	3100
	3200	27.600	120.220	124.148	86.579	115.583	88.028	3200
	3300	27.600	122.980	124.997	87.730	118.343	89.135	3300
	3400	27.600	125.740	125.821	88.839	121.103	90.202	3400
	3500	27.600	128.500	126.621	89.907	123.863	91.231	3500
	3600	27.600	131.260	127.398	90.937	126.623	92.225	3600
	3700	27.600	134.020	128.155	91.933	129.383	93.186	3700
	3800	27.600	136.780	128.891	92.896	132.143	94.116	3800
	3900	27.600	139.540	129.607	93.828	134.903	95.017	3900
	4000	27.600	142.300	130.306	94.731	137.663	95.890	4000
	4100	27.600	145.060	130.988	95.607	140.423	96.738	4100
	4200	27.600	147.820	131.653	96.458	143.183	97.562	4200
	4300	27.600	150.580	132.302	97.284	145.943	98.362	4300
	4400	27.600	153.340	132.937	98.087	148.703	99.141	4400
	4500	27.600	156.100	133.557	98.868	151.463	99.899	4500
	4600	27.600	158.860	134.164	99.629	154.223	100.637	4600
	4700	27.600	161.620	134.757	100.370	156.983	101.357	4700
	4800	27.600	164.380	135.338	101.093	159.743	102.058	4800
	4900	27.600	167.140	135.907	101.797	162.503	102.744	4900
	5000	27.600	169.900	136.465	102.485	165.263	103.412	5000
	5100	27.600	172.660	137.012	103.157	168.023	104.066	5100
	5200	27.600	175.420	137.548	103.813	170.783	104.705	5200
	5300	27.600	178.180	138.073	104.454	173.543	105.329	5300
	5400	27.600	180.940	138.589	105.082	176.303	105.940	5400
	5500	27.600	183.700	139.096	105.696	179.063	106.539	5500
	5600	27.600	186.460	139.593	106.297	181.823	107.124	5600
	5700	27.600	189.220	140.081	106.885	184.583	107.698	5700
	5800	27.600	191.980	140.561	107.461	187.343	108.261	5800
	5900	27.600	194.740	141.033	108.027	190.103	108.812	5900
	6000	27.600	197.500	141.497	108.581	192.863	109.353	6000

TABLE IX.21. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR H_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.468	INFINITE	0
200	27.445	5.693	119.409	90.945	-2.775	133.286	200
298.15	28.836	8.468	130.681	102.279	0.000	130.681	298.15
300	28.849	8.521	130.859	102.455	0.053	130.682	300
400	29.189	11.428	139.218	110.649	2.960	131.819	400
500	29.254	14.351	145.740	117.039	5.883	133.975	500
600	29.318	17.279	151.079	122.281	8.811	136.394	600
700	29.444	20.216	155.607	126.726	11.748	138.823	700
800	29.629	23.170	159.550	130.588	14.701	141.173	800
900	29.873	26.144	163.053	134.004	17.676	143.413	900
1000	30.206	29.147	166.217	137.070	20.679	145.538	1000
1100	30.567	32.185	169.112	139.853	23.717	147.551	1100
1200	30.983	35.262	171.789	142.404	26.794	149.461	1200
1300	31.421	38.382	174.286	144.761	29.914	151.275	1300
1400	31.866	41.547	176.631	146.955	33.079	153.004	1400
1500	32.305	44.755	178.845	149.008	36.287	154.653	1500
1600	32.732	48.007	180.943	150.939	39.539	156.231	1600
1700	33.144	51.301	182.940	152.763	42.833	157.744	1700
1800	33.539	54.636	184.846	154.493	46.167	159.197	1800
1900	33.916	58.008	186.669	156.139	49.540	160.596	1900
2000	34.276	61.418	188.418	157.709	52.950	161.943	2000
2100	34.618	64.863	190.099	159.212	56.395	163.244	2100
2200	34.944	68.341	191.717	160.653	59.873	164.502	2200
2300	35.254	71.851	193.277	162.038	63.383	165.719	2300
2400	35.550	75.392	194.784	163.371	66.924	166.899	2400
2500	35.832	78.961	196.241	164.657	70.493	168.044	2500
2600	36.102	82.558	197.652	165.899	74.090	169.156	2600
2700	36.361	86.181	199.019	167.100	77.713	170.236	2700
2800	36.609	89.830	200.346	168.264	81.361	171.288	2800
2900	36.848	93.502	201.635	169.393	85.034	172.313	2900
3000	37.078	97.199	202.888	170.488	88.731	173.311	3000
3100	37.301	100.918	204.107	171.553	92.450	174.285	3100
3200	37.518	104.659	205.295	172.589	96.191	175.235	3200
3300	37.728	108.421	206.453	173.598	99.953	176.164	3300
3400	37.934	112.204	207.582	174.581	103.736	177.071	3400
3500	38.135	116.008	208.685	175.540	107.540	177.959	3500
3600	38.331	119.831	209.762	176.475	111.363	178.827	3600
3700	38.525	123.674	210.815	177.389	115.206	179.678	3700
3800	38.715	127.536	211.844	178.282	119.068	180.511	3800
3900	38.902	131.417	212.853	179.156	122.949	181.327	3900
4000	39.087	135.316	213.840	180.011	126.848	182.128	4000
4100	39.269	139.234	214.807	180.848	130.766	182.913	4100
4200	39.449	143.170	215.756	181.668	134.702	183.684	4200
4300	39.627	147.124	216.686	182.471	138.656	184.440	4300
4400	39.802	151.095	217.599	183.259	142.627	185.184	4400
4500	39.975	155.084	218.495	184.032	146.616	185.914	4500
4600	40.145	159.090	219.376	184.791	150.622	186.632	4600
4700	40.312	163.113	220.241	185.536	154.645	187.338	4700
4800	40.476	167.153	221.091	186.268	158.684	188.032	4800
4900	40.637	171.208	221.928	186.987	162.740	188.715	4900
5000	40.793	175.280	222.750	187.694	166.812	189.388	5000
5100	40.944	179.367	223.560	188.390	170.899	190.050	5100
5200	41.090	183.468	224.356	189.074	175.000	190.702	5200
5300	41.230	187.584	225.140	189.747	179.116	191.345	5300
5400	41.363	191.714	225.912	190.409	183.246	191.978	5400
5500	41.488	195.857	226.672	191.062	187.389	192.601	5500
5600	41.604	200.011	227.421	191.704	191.543	193.217	5600
5700	41.711	204.177	228.158	192.337	195.709	193.823	5700
5800	41.807	208.353	228.884	192.961	199.885	194.421	5800
5900	41.891	212.538	229.600	193.576	204.070	195.012	5900
6000	41.962	216.731	230.304	194.183	208.263	195.594	6000
6200	42.096	225.137	231.683	195.370	216.669	196.736	6200
6400	42.194	233.567	233.021	196.526	225.099	197.849	6400
6600	42.251	242.012	234.320	197.652	233.544	198.935	6600
6800	42.266	250.465	235.582	198.749	241.996	199.994	6800
7000	42.239	258.916	236.807	199.819	250.448	201.028	7000
7200	42.169	267.357	237.996	200.863	258.889	202.039	7200
7400	42.060	275.781	239.150	201.882	267.313	203.026	7400
7600	41.914	284.179	240.269	202.878	275.711	203.992	7600
7800	41.733	292.544	241.356	203.850	284.076	204.936	7800
8000	41.520	300.870	242.410	204.801	292.402	205.860	8000

TABLE IX.21. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.279	309.150	243.432	205.731	300.682	206.764	8200
8400	41.011	317.380	244.424	206.641	308.912	207.649	8400
8600	40.721	325.553	245.385	207.530	317.085	208.515	8600
8800	40.411	333.667	246.318	208.401	325.199	209.364	8800
9000	40.084	341.717	247.223	209.254	333.249	210.195	9000
9200	39.743	349.700	248.100	210.089	341.232	211.010	9200
9400	39.390	357.613	248.951	210.907	349.145	211.808	9400
9600	39.026	365.455	249.776	211.708	356.987	212.590	9600
9800	38.656	373.223	250.577	212.493	364.755	213.357	9800
10000	38.280	380.917	251.354	213.263	372.449	214.110	10000
10500	37.326	399.819	253.199	215.121	391.351	215.928	10500
11000	36.372	418.243	254.913	216.891	409.775	217.661	11000
11500	35.437	436.194	256.510	218.580	427.726	219.316	11500
12000	34.533	453.685	257.998	220.191	445.217	220.897	12000
12500	33.669	470.734	259.391	221.732	462.266	222.409	12500
13000	32.853	487.362	260.695	223.206	478.894	223.857	13000
13500	32.086	503.595	261.920	224.617	495.126	225.244	13500
14000	31.369	519.456	263.074	225.970	510.988	226.575	14000
14500	30.703	534.972	264.163	227.268	526.504	227.853	14500
15000	30.084	550.167	265.193	228.516	541.699	229.080	15000
15500	29.511	565.063	266.170	229.715	556.595	230.261	15500
16000	28.979	579.684	267.099	230.869	571.216	231.398	16000
16500	28.487	594.049	267.983	231.980	585.581	232.493	16500
17000	28.030	608.177	268.826	233.051	599.709	233.549	17000
17500	27.605	622.084	269.633	234.085	613.616	234.569	17500
18000	27.211	635.787	270.405	235.083	627.319	235.554	18000
18500	26.845	649.300	271.145	236.048	640.832	236.506	18500
19000	26.507	662.637	271.857	236.981	654.169	237.427	19000
19500	26.197	675.812	272.541	237.884	667.344	238.318	19500
20000	25.915	688.838	273.201	238.759	680.370	239.182	20000

TABLE IX.22. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR He

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	117.854	97.068	-2.040	128.055	200
298.15	20.786	6.197	126.154	105.367	0.000	126.154	298.15
300	20.786	6.236	126.282	105.496	0.038	126.154	300
400	20.786	8.315	132.262	111.476	2.117	126.969	400
500	20.786	10.393	136.900	116.114	4.196	128.509	500
600	20.786	12.472	140.690	119.904	6.274	130.233	600
700	20.786	14.550	143.894	123.108	8.353	131.962	700
800	20.786	16.629	146.670	125.884	10.432	133.631	800
900	20.786	18.708	149.118	128.332	12.510	135.218	900
1000	20.786	20.786	151.308	130.522	14.589	136.720	1000
1100	20.786	22.865	153.290	132.503	16.667	138.137	1100
1200	20.786	24.944	155.098	134.312	18.746	139.476	1200
1300	20.786	27.022	156.762	135.976	20.825	140.743	1300
1400	20.786	29.101	158.302	137.516	22.903	141.943	1400
1500	20.786	31.179	159.736	138.950	24.982	143.082	1500
1600	20.786	33.258	161.078	140.292	27.061	144.165	1600
1700	20.786	35.337	162.338	141.552	29.139	145.197	1700
1800	20.786	37.415	163.526	142.740	31.218	146.183	1800
1900	20.786	39.494	164.650	143.864	33.296	147.126	1900
2000	20.786	41.573	165.716	144.930	35.375	148.029	2000
2100	20.786	43.651	166.730	145.944	37.454	148.895	2100
2200	20.786	45.730	167.697	146.911	39.532	149.728	2200
2300	20.786	47.808	168.621	147.835	41.611	150.530	2300
2400	20.786	49.887	169.506	148.720	43.690	151.302	2400
2500	20.786	51.966	170.355	149.568	45.768	152.047	2500
2600	20.786	54.044	171.170	150.384	47.847	152.767	2600
2700	20.786	56.123	171.954	151.168	49.926	153.463	2700
2800	20.786	58.202	172.710	151.924	52.004	154.137	2800
2900	20.786	60.280	173.440	152.653	54.083	154.791	2900
3000	20.786	62.359	174.144	153.358	56.161	155.424	3000
3100	20.786	64.437	174.826	154.040	58.240	156.039	3100
3200	20.786	66.516	175.486	154.700	60.319	156.636	3200
3300	20.786	68.595	176.126	155.339	62.397	157.217	3300
3400	20.786	70.673	176.746	155.960	64.476	157.783	3400
3500	20.786	72.752	177.349	156.562	66.555	158.333	3500
3600	20.786	74.831	177.934	157.148	68.633	158.869	3600
3700	20.786	76.909	178.504	157.717	70.712	159.392	3700
3800	20.786	78.988	179.058	158.272	72.790	159.903	3800
3900	20.786	81.066	179.598	158.812	74.869	160.401	3900
4000	20.786	83.145	180.124	159.338	76.948	160.887	4000
4100	20.786	85.224	180.638	159.851	79.026	161.363	4100
4200	20.786	87.302	181.138	160.352	81.105	161.828	4200
4300	20.786	89.381	181.628	160.841	83.184	162.283	4300
4400	20.786	91.460	182.105	161.319	85.262	162.728	4400
4500	20.786	93.538	182.573	161.786	87.341	163.163	4500
4600	20.786	95.617	183.029	162.243	89.419	163.590	4600
4700	20.786	97.695	183.476	162.690	91.498	164.009	4700
4800	20.786	99.774	183.914	163.128	93.577	164.419	4800
4900	20.786	101.853	184.343	163.556	95.655	164.821	4900
5000	20.786	103.931	184.763	163.976	97.734	165.216	5000
5100	20.786	106.010	185.174	164.388	99.813	165.603	5100
5200	20.786	108.089	185.578	164.792	101.891	165.983	5200
5300	20.786	110.167	185.974	165.188	103.970	166.357	5300
5400	20.786	112.246	186.362	165.576	106.048	166.724	5400
5500	20.786	114.325	186.744	165.957	108.127	167.084	5500
5600	20.786	116.403	187.118	166.332	110.206	167.439	5600
5700	20.786	118.482	187.486	166.700	112.284	167.787	5700
5800	20.786	120.560	187.848	167.061	114.363	168.130	5800
5900	20.786	122.639	188.203	167.417	116.442	168.467	5900
6000	20.786	124.718	188.552	167.766	118.520	168.799	6000
6200	20.786	128.875	189.234	168.448	122.677	169.447	6200
6400	20.786	133.032	189.894	169.108	126.835	170.076	6400
6600	20.786	137.189	190.533	169.747	130.992	170.686	6600
6800	20.786	141.346	191.154	170.368	135.149	171.279	6800
7000	20.786	145.504	191.757	170.970	139.306	171.856	7000
7200	20.786	149.661	192.342	171.556	143.463	172.417	7200
7400	20.786	153.818	192.912	172.125	147.621	172.963	7400
7600	20.786	157.975	193.466	172.680	151.778	173.495	7600
7800	20.786	162.133	194.006	173.220	155.935	174.014	7800
8000	20.787	166.290	194.532	173.746	160.092	174.521	8000

TABLE IX.22. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.787	170.447	195.045	174.259	164.250	175.015	8200
8400	20.787	174.604	195.546	174.760	168.407	175.498	8400
8600	20.786	178.762	196.035	175.249	172.564	175.970	8600
8800	20.786	182.919	196.513	175.727	176.722	176.431	8800
9000	20.786	187.076	196.980	176.194	180.879	176.883	9000
9200	20.786	191.234	197.437	176.651	185.036	177.325	9200
9400	20.786	195.391	197.884	177.098	189.193	177.757	9400
9600	20.786	199.548	198.322	177.536	193.351	178.181	9600
9800	20.786	203.705	198.751	177.964	197.508	178.597	9800
10000	20.786	207.862	199.171	178.384	201.665	179.004	10000
10500	20.786	218.255	200.185	179.398	212.058	179.989	10500
11000	20.786	228.648	201.152	180.365	222.451	180.929	11000
11500	20.786	239.041	202.076	181.289	232.843	181.828	11500
12000	20.786	249.434	202.960	182.174	243.236	182.690	12000
12500	20.786	259.827	203.809	183.023	253.629	183.518	12500
13000	20.787	270.220	204.624	183.838	264.022	184.315	13000
13500	20.788	280.613	205.408	184.622	274.416	185.081	13500
14000	20.789	291.007	206.164	185.378	284.810	185.821	14000
14500	20.791	301.402	206.894	186.108	295.205	186.535	14500
15000	20.793	311.798	207.599	186.812	305.601	187.226	15000
15500	20.796	322.195	208.281	187.494	315.998	187.894	15500
16000	20.801	332.595	208.941	188.154	326.397	188.541	16000
16500	20.806	342.996	209.581	188.794	336.799	189.169	16500
17000	20.813	353.401	210.202	189.414	347.203	189.779	17000
17500	20.822	363.810	210.806	190.017	357.612	190.371	17500
18000	20.833	374.223	211.393	190.602	368.026	190.947	18000
18500	20.847	384.643	211.964	191.172	378.445	191.507	18500
19000	20.863	395.070	212.520	191.727	388.873	192.053	19000
19500	20.883	405.507	213.062	192.267	399.309	192.585	19500
20000	20.907	415.954	213.591	192.793	409.757	193.103	20000

TABLE IX.23. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Hg(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-9.343	INFINITE	0
	200	27.275	4.291	55.022	33.568	-5.052	80.283	200
cr	234.29	28.485	5.246	59.428	37.037	-4.097	76.915	234.29
ℓ	234.29	28.476	7.541	69.225	37.037	-1.802	76.915	234.29
	298.15	27.975	9.344	76.030	44.691	0.001	76.028	298.15
	300	27.961	9.395	76.203	44.885	0.052	76.028	300
	400	27.412	12.161	84.163	53.760	2.818	77.118	400
	500	27.176	14.888	90.250	60.473	5.545	79.159	500
	600	27.139	17.602	95.198	65.861	8.259	81.432	600
	700	27.292	20.322	99.390	70.359	10.979	83.706	700
	800	27.580	23.065	103.052	74.221	13.722	85.900	800
	900	27.895	25.838	106.319	77.609	16.495	87.990	900
	1000	28.211	28.644	109.274	80.630	19.301	89.973	1000
	1100	28.524	31.481	111.978	83.359	22.138	91.852	1100
	1200	28.836	34.349	114.473	85.849	25.006	93.635	1200
	1300	29.149	37.248	116.793	88.141	27.905	95.328	1300
	1400	29.464	40.179	118.965	90.266	30.836	96.940	1400
	1500	29.779	43.141	121.009	92.248	33.798	98.477	1500
	1600	30.093	46.134	122.940	94.107	36.791	99.946	1600
	1700	30.407	49.159	124.774	95.857	39.816	101.353	1700
	1800	30.719	52.216	126.521	97.512	42.873	102.703	1800
	1900	31.031	55.303	128.190	99.084	45.960	104.001	1900
	2000	31.348	58.422	129.790	100.579	49.079	105.251	2000

TABLE IX.24. - THERMODYNAMIC FUNCTIONS FOR I_2(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-13.196	INFINITE	0
	200	51.560	7.979	94.950	55.055	-5.217	121.035	200
	298.15	54.440	13.196	116.139	71.879	0.000	116.139	298.15
	300	54.511	13.297	116.476	72.153	0.101	116.140	300
cr	386.75	61.519	18.284	131.041	83.764	5.088	117.884	386.75
ℓ	386.75	79.555	33.949	171.545	83.764	20.753	117.884	386.75
	400	79.555	35.004	174.225	86.716	21.808	119.706	400
	500	79.555	42.959	191.977	106.059	29.763	132.451	500
	600	79.555	50.915	206.482	121.624	37.719	143.618	600
	700	79.555	58.870	218.745	134.645	45.674	153.497	700
	800	79.555	66.826	229.368	145.836	53.630	162.331	800
	900	79.555	74.781	238.739	155.649	61.585	170.311	900
	1000	79.555	82.737	247.121	164.384	69.541	177.580	1000
	1100	79.555	90.692	254.703	172.256	77.496	184.252	1100
	1200	79.555	98.648	261.625	179.419	85.452	190.416	1200
	1300	79.555	106.603	267.993	185.991	93.407	196.141	1300
	1400	79.555	114.559	273.889	192.061	101.363	201.487	1400
	1500	79.555	122.514	279.377	197.701	109.318	206.499	1500
	1600	79.555	130.470	284.512	202.968	117.274	211.216	1600
	1700	79.555	138.425	289.335	207.908	125.229	215.671	1700
	1800	79.555	146.381	293.882	212.559	133.185	219.891	1800
	1900	79.555	154.336	298.183	216.954	141.140	223.899	1900
	2000	79.555	162.292	302.264	221.118	149.096	227.716	2000
	2100	79.555	170.247	306.145	225.075	157.051	231.359	2100
	2200	79.555	178.203	309.846	228.845	165.007	234.843	2200
	2300	79.555	186.158	313.383	232.444	172.962	238.182	2300
	2400	79.555	194.114	316.769	235.888	180.918	241.386	2400
	2500	79.555	202.069	320.016	239.189	188.873	244.467	2500
	2600	79.555	210.025	323.136	242.358	196.829	247.433	2600
	2700	79.555	217.980	326.139	245.405	204.784	250.293	2700
	2800	79.555	225.936	329.032	248.341	212.740	253.054	2800
	2900	79.555	233.891	331.824	251.172	220.695	255.722	2900
	3000	79.555	241.847	334.521	253.905	228.651	258.304	3000
	3100	79.555	249.802	337.129	256.548	236.606	260.805	3100
	3200	79.555	257.758	339.655	259.106	244.562	263.230	3200
	3300	79.555	265.713	342.103	261.584	252.517	265.583	3300
	3400	79.555	273.669	344.478	263.987	260.473	267.869	3400
	3500	79.555	281.624	346.784	266.320	268.428	270.090	3500
	3600	79.555	289.580	349.025	268.587	276.384	272.252	3600
	3700	79.555	297.535	351.205	270.790	284.339	274.357	3700
	3800	79.555	305.491	353.327	272.934	292.295	276.407	3800
	3900	79.555	313.446	355.393	275.022	300.250	278.406	3900
	4000	79.555	321.402	357.407	277.057	308.206	280.356	4000
	4100	79.555	329.357	359.372	279.041	316.161	282.259	4100
	4200	79.555	337.313	361.289	280.976	324.117	284.118	4200
	4300	79.555	345.268	363.161	282.866	332.072	285.935	4300
	4400	79.555	353.224	364.990	284.712	340.028	287.711	4400
	4500	79.555	361.179	366.778	286.515	347.983	289.448	4500
	4600	79.555	369.135	368.526	288.279	355.939	291.148	4600
	4700	79.555	377.090	370.237	290.005	363.894	292.813	4700
	4800	79.555	385.046	371.912	291.694	371.850	294.443	4800
	4900	79.555	393.001	373.552	293.348	379.805	296.041	4900
	5000	79.555	400.957	375.159	294.968	387.761	297.607	5000
	5100	79.555	408.912	376.735	296.556	395.716	299.143	5100
	5200	79.555	416.868	378.280	298.113	403.672	300.651	5200
	5300	79.555	424.823	379.795	299.640	411.627	302.130	5300
	5400	79.555	432.779	381.282	301.138	419.583	303.582	5400
	5500	79.555	440.734	382.742	302.608	427.538	305.008	5500
	5600	79.555	448.690	384.175	304.052	435.494	306.409	5600
	5700	79.555	456.645	385.583	305.470	443.449	307.785	5700
	5800	79.555	464.601	386.967	306.863	451.405	309.139	5800
	5900	79.555	472.556	388.327	308.233	459.360	310.469	5900
	6000	79.555	480.512	389.664	309.579	467.316	311.778	6000

TABLE IX.25. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR K(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.088	INFINITE	0
	200	26.820	4.324	53.469	31.847	-2.764	67.287	200
	298.15	29.600	7.088	64.680	40.907	0.000	64.680	298.15
	300	29.688	7.143	64.863	41.054	0.055	64.681	300
cr	336.86	32.129	8.278	68.429	43.855	1.190	64.897	336.86
ℓ	336.86	32.129	10.599	75.319	43.855	3.511	64.897	336.86
	400	31.544	12.609	80.790	49.268	5.521	66.988	400
	500	30.733	15.721	87.738	56.296	8.633	70.472	500
	600	30.154	18.763	93.286	62.014	11.675	73.827	600
	700	29.848	21.761	97.908	66.821	14.673	76.946	700
	800	29.836	24.743	101.889	70.961	17.655	79.821	800
	900	30.128	27.738	105.417	74.597	20.650	82.472	900
	1000	30.729	30.779	108.620	77.841	23.691	84.929	1000
	1100	31.642	33.895	111.589	80.776	26.807	87.219	1100
	1200	32.868	37.118	114.393	83.461	30.030	89.368	1200
	1300	34.410	40.479	117.082	85.945	33.391	91.397	1300
	1400	36.267	44.010	119.698	88.263	36.922	93.325	1400
	1500	38.440	47.743	122.273	90.444	40.655	95.170	1500
	1600	40.929	51.709	124.831	92.514	44.621	96.944	1600
	1700	43.734	55.939	127.395	94.490	48.851	98.659	1700
	1800	46.856	60.466	129.982	96.390	53.378	100.328	1800
	1900	50.294	65.321	132.606	98.227	58.233	101.957	1900
	2000	54.050	70.535	135.280	100.012	63.447	103.556	2000
	2100	58.122	76.141	138.014	101.756	69.053	105.132	2100
	2200	62.512	82.170	140.818	103.468	75.082	106.690	2200

TABLE IX.26. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Kr

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	155.787	135.001	-2.040	165.988	200
298.15	20.786	6.197	164.086	143.300	0.000	164.086	298.15
300	20.786	6.236	164.215	143.429	0.038	164.087	300
400	20.786	8.315	170.195	149.409	2.117	164.902	400
500	20.786	10.393	174.833	154.047	4.196	166.442	500
600	20.786	12.472	178.623	157.837	6.274	168.166	600
700	20.786	14.550	181.827	161.041	8.353	169.894	700
800	20.786	16.629	184.603	163.817	10.432	171.563	800
900	20.786	18.708	187.051	166.265	12.510	173.151	900
1000	20.786	20.786	189.241	168.455	14.589	174.652	1000
1100	20.786	22.865	191.222	170.436	16.667	176.070	1100
1200	20.786	24.944	193.031	172.245	18.746	177.409	1200
1300	20.786	27.022	194.695	173.908	20.825	178.676	1300
1400	20.786	29.101	196.235	175.449	22.903	179.876	1400
1500	20.786	31.179	197.669	176.883	24.982	181.015	1500
1600	20.786	33.258	199.011	178.224	27.061	182.098	1600
1700	20.786	35.337	200.271	179.485	29.139	183.130	1700
1800	20.786	37.415	201.459	180.673	31.218	184.116	1800
1900	20.786	39.494	202.583	181.797	33.296	185.058	1900
2000	20.786	41.573	203.649	182.863	35.375	185.962	2000
2100	20.786	43.651	204.663	183.877	37.454	186.828	2100
2200	20.786	45.730	205.630	184.844	39.532	187.661	2200
2300	20.786	47.808	206.554	185.768	41.611	188.462	2300
2400	20.786	49.887	207.439	186.653	43.690	189.235	2400
2500	20.786	51.966	208.287	187.501	45.768	189.980	2500
2600	20.786	54.044	209.103	188.316	47.847	190.700	2600
2700	20.786	56.123	209.887	189.101	49.926	191.396	2700
2800	20.786	58.202	210.643	189.857	52.004	192.070	2800
2900	20.786	60.280	211.372	190.586	54.083	192.723	2900
3000	20.786	62.359	212.077	191.291	56.161	193.357	3000
3100	20.786	64.437	212.759	191.972	58.240	193.972	3100
3200	20.786	66.516	213.419	192.632	60.319	194.569	3200
3300	20.786	68.595	214.058	193.272	62.397	195.150	3300
3400	20.786	70.673	214.679	193.893	64.476	195.715	3400
3500	20.786	72.752	215.281	194.495	66.555	196.266	3500
3600	20.786	74.831	215.867	195.081	68.633	196.802	3600
3700	20.786	76.909	216.436	195.650	70.712	197.325	3700
3800	20.786	78.988	216.991	196.205	72.790	197.835	3800
3900	20.786	81.066	217.531	196.744	74.869	198.334	3900
4000	20.786	83.145	218.057	197.271	76.948	198.820	4000
4100	20.786	85.224	218.570	197.784	79.026	199.296	4100
4200	20.786	87.302	219.071	198.285	81.105	199.760	4200
4300	20.786	89.381	219.560	198.774	83.184	200.215	4300
4400	20.786	91.460	220.038	199.252	85.262	200.660	4400
4500	20.786	93.538	220.505	199.719	87.341	201.096	4500
4600	20.786	95.617	220.962	200.176	89.419	201.523	4600
4700	20.786	97.695	221.409	200.623	91.498	201.942	4700
4800	20.786	99.774	221.847	201.061	93.577	202.352	4800
4900	20.786	101.853	222.275	201.489	95.655	202.754	4900
5000	20.786	103.931	222.695	201.909	97.734	203.149	5000
5100	20.786	106.010	223.107	202.321	99.813	203.536	5100
5200	20.786	108.089	223.511	202.724	101.891	203.916	5200
5300	20.786	110.167	223.907	203.120	103.970	204.290	5300
5400	20.786	112.246	224.295	203.509	106.048	204.656	5400
5500	20.786	114.325	224.676	203.890	108.127	205.017	5500
5600	20.786	116.403	225.051	204.265	110.206	205.371	5600
5700	20.786	118.482	225.419	204.633	112.284	205.720	5700
5800	20.786	120.560	225.780	204.994	114.363	206.063	5800
5900	20.786	122.639	226.136	205.349	116.442	206.400	5900
6000	20.786	124.718	226.485	205.699	118.520	206.732	6000
6200	20.913	128.890	227.169	206.380	122.692	207.380	6200
6400	20.940	133.076	227.834	207.041	126.879	208.009	6400
6600	20.909	137.262	228.478	207.680	131.064	208.619	6600
6800	20.850	141.438	229.101	208.301	135.241	209.213	6800
7000	20.782	145.601	229.704	208.904	139.404	209.790	7000
7200	20.719	149.751	230.289	209.490	143.554	210.351	7200
7400	20.667	153.890	230.856	210.060	147.692	210.898	7400
7600	20.632	158.019	231.407	210.615	151.822	211.430	7600
7800	20.614	162.144	231.942	211.155	155.946	211.949	7800
8000	20.613	166.266	232.464	211.681	160.068	212.456	8000

TABLE IX.26. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.628	170.390	232.973	212.194	164.192	212.950	8200
8400	20.658	174.518	233.471	212.695	168.321	213.432	8400
8600	20.701	178.654	233.957	213.184	172.457	213.904	8600
8800	20.753	182.799	234.434	213.661	176.602	214.365	8800
9000	20.813	186.956	234.901	214.128	180.758	214.817	9000
9200	20.880	191.125	235.359	214.584	184.928	215.258	9200
9400	20.952	195.308	235.809	215.031	189.111	215.691	9400
9600	21.028	199.506	236.251	215.469	193.309	216.114	9600
9800	21.107	203.720	236.685	215.897	197.522	216.530	9800
10000	21.189	207.949	237.112	216.317	201.752	216.937	10000
10500	21.411	218.598	238.151	217.333	212.401	217.923	10500
11000	21.667	229.366	239.153	218.302	223.168	218.865	11000
11500	21.982	240.275	240.123	219.230	234.077	219.768	11500
12000	22.390	251.363	241.067	220.120	245.166	220.636	12000
12500	22.927	262.686	241.991	220.976	256.489	221.472	12500
13000	23.631	274.318	242.903	221.802	268.121	222.279	13000
13500	24.538	286.351	243.812	222.600	280.154	223.059	13500
14000	25.676	298.894	244.724	223.374	292.697	223.817	14000
14500	27.067	312.069	245.648	224.126	305.872	224.554	14500
15000	28.720	326.005	246.593	224.859	319.807	225.273	15000
15500	30.634	340.833	247.565	225.576	334.635	225.976	15500
16000	32.790	356.679	248.571	226.279	350.482	226.666	16000
16500	35.156	373.658	249.616	226.970	367.461	227.346	16500
17000	37.680	391.862	250.703	227.652	385.665	228.017	17000
17500	40.293	411.353	251.833	228.327	405.156	228.681	17500
18000	42.905	432.155	253.004	228.996	425.957	229.340	18000
18500	45.407	454.240	254.214	229.661	448.042	229.996	18500
19000	47.666	477.521	255.456	230.323	471.324	230.650	19000
19500	49.531	501.840	256.719	230.984	495.643	231.302	19500
20000	50.825	526.957	257.991	231.643	520.760	231.953	20000

TABLE IX.27. - THERMODYNAMIC FUNCTIONS FOR Li(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.632	INFINITE	0
	200	21.552	2.343	19.853	8.136	-2.289	31.296	200
	298.15	24.860	4.632	29.120	13.584	0.000	29.120	298.15
	300	24.881	4.678	29.274	13.680	0.046	29.120	300
	400	27.584	7.280	36.742	18.541	2.648	30.121	400
cr	453.69	29.769	8.819	40.347	20.910	4.187	31.119	453.69
ℓ	453.69	30.375	11.819	46.960	20.910	7.187	31.119	453.69
	500	30.071	13.218	49.897	23.461	8.586	32.725	500
	600	29.584	16.199	55.334	28.335	11.567	36.055	600
	700	29.248	19.140	59.867	32.525	14.508	39.142	700
	800	29.017	22.052	63.757	36.191	17.420	41.981	800
	900	28.870	24.946	67.165	39.447	20.314	44.594	900
	1000	28.795	27.829	70.202	42.374	23.197	47.006	1000
	1100	28.785	30.707	72.946	45.030	26.075	49.241	1100
	1200	28.836	33.588	75.452	47.462	28.956	51.322	1200
	1300	28.945	36.476	77.764	49.706	31.844	53.269	1300
	1400	29.111	39.379	79.915	51.787	34.747	55.096	1400
	1500	29.334	42.300	81.931	53.730	37.668	56.818	1500
	1600	29.611	45.247	83.832	55.553	40.615	58.448	1600
	1700	29.942	48.224	85.637	57.270	43.592	59.995	1700
	1800	30.328	51.237	87.359	58.894	46.605	61.467	1800
	1900	30.767	54.292	89.011	60.436	49.660	62.874	1900
	2000	31.260	57.393	90.601	61.905	52.761	64.221	2000
	2100	31.806	60.546	92.139	63.308	55.914	65.514	2100
	2200	32.406	63.756	93.633	64.653	59.124	66.758	2200
	2300	33.058	67.028	95.087	65.944	62.396	67.958	2300
	2400	33.764	70.369	96.509	67.188	65.737	69.118	2400
	2500	34.522	73.783	97.902	68.389	69.151	70.242	2500
	2600	35.334	77.275	99.272	69.551	72.643	71.332	2600
	2700	36.198	80.851	100.622	70.677	76.219	72.392	2700
	2800	37.115	84.517	101.954	71.770	79.885	73.424	2800
	2900	38.084	88.276	103.274	72.834	83.644	74.431	2900
	3000	39.107	92.135	104.582	73.870	87.503	75.414	3000

TABLE IX.28. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Mg(cr,ℓ)

	T K	C_p° J/mol-K	$H^\circ(T)-H^\circ(0)$ kJ/mol	$S^\circ(T)$ J/mol-K	$-\{G^\circ(T)-H^\circ(0)\}/T$ J/mol-K	$H^\circ(T)$ kJ/mol	$-G^\circ(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.979	INFINITE	0
	200	22.649	2.639	23.041	9.848	-2.341	34.744	200
	298.15	24.775	4.979	32.535	15.835	0.000	32.535	298.15
	300	24.862	5.025	32.689	15.938	0.046	32.536	300
	400	26.234	7.586	40.047	21.082	2.607	33.530	400
	500	27.218	10.260	46.009	25.489	5.281	35.448	500
	600	28.192	13.030	51.057	29.340	8.051	37.639	600
	700	29.284	15.902	55.483	32.765	10.923	39.878	700
	800	30.548	18.892	59.473	35.858	13.913	42.082	800
	900	32.010	22.018	63.154	38.689	17.039	44.221	900
cr	923	32.376	22.759	63.966	39.308	17.780	44.703	923
ℓ	923	34.300	31.159	73.067	39.308	26.180	44.703	923
	1000	34.300	33.800	75.815	42.015	28.821	46.994	1000
	1100	34.300	37.230	79.084	45.239	32.251	49.765	1100
	1200	34.300	40.660	82.069	48.185	35.681	52.335	1200
	1300	34.300	44.090	84.814	50.899	39.111	54.729	1300
	1400	34.300	47.520	87.356	53.413	42.541	56.970	1400
	1500	34.300	50.950	89.723	55.756	45.971	59.075	1500
	1600	34.300	54.380	91.936	57.949	49.401	61.061	1600
	1700	34.300	57.810	94.016	60.010	52.831	62.939	1700
	1800	34.300	61.240	95.976	61.954	56.261	64.720	1800
	1900	34.300	64.670	97.831	63.794	59.691	66.414	1900
	2000	34.300	68.100	99.590	65.540	63.121	68.030	2000
	2100	34.300	71.530	101.264	67.202	66.551	69.573	2100
	2200	34.300	74.960	102.859	68.786	69.981	71.050	2200
	2300	34.300	78.390	104.384	70.301	73.411	72.466	2300
	2400	34.300	81.820	105.844	71.752	76.841	73.827	2400
	2500	34.300	85.250	107.244	73.144	80.271	75.136	2500
	2600	34.300	88.680	108.589	74.481	83.701	76.396	2600
	2700	34.300	92.110	109.884	75.769	87.131	77.613	2700
	2800	34.300	95.540	111.131	77.010	90.561	78.788	2800
	2900	34.300	98.970	112.335	78.207	93.991	79.924	2900
	3000	34.300	102.400	113.497	79.364	97.421	81.024	3000
	3100	34.300	105.830	114.622	80.483	100.851	82.090	3100
	3200	34.300	109.260	115.711	81.567	104.281	83.123	3200
	3300	34.300	112.690	116.767	82.618	107.711	84.127	3300
	3400	34.300	116.120	117.791	83.638	111.141	85.102	3400
	3500	34.300	119.550	118.785	84.628	114.571	86.050	3500
	3600	34.300	122.980	119.751	85.590	118.001	86.973	3600
	3700	34.300	126.410	120.691	86.526	121.431	87.872	3700
	3800	34.300	129.840	121.606	87.437	124.861	88.747	3800
	3900	34.300	133.270	122.497	88.325	128.291	89.601	3900
	4000	34.300	136.700	123.365	89.190	131.721	90.435	4000
	4100	34.300	140.130	124.212	90.034	135.151	91.248	4100
	4200	34.300	143.560	125.038	90.858	138.581	92.043	4200
	4300	34.300	146.990	125.846	91.662	142.011	92.820	4300
	4400	34.300	150.420	126.634	92.448	145.441	93.579	4400
	4500	34.300	153.850	127.405	93.216	148.871	94.323	4500
	4600	34.300	157.280	128.159	93.967	152.301	95.050	4600
	4700	34.300	160.710	128.896	94.703	155.731	95.762	4700
	4800	34.300	164.140	129.619	95.423	159.161	96.460	4800
	4900	34.300	167.570	130.326	96.128	162.591	97.144	4900
	5000	34.300	171.000	131.019	96.819	166.021	97.815	5000
	5100	34.300	174.430	131.698	97.496	169.451	98.472	5100
	5200	34.300	177.860	132.364	98.160	172.881	99.118	5200
	5300	34.300	181.290	133.017	98.812	176.311	99.751	5300
	5400	34.300	184.720	133.659	99.451	179.741	100.373	5400
	5500	34.300	188.150	134.288	100.079	183.171	100.984	5500
	5600	34.300	191.580	134.906	100.695	186.601	101.584	5600
	5700	34.300	195.010	135.513	101.301	190.031	102.174	5700
	5800	34.300	198.440	136.110	101.896	193.461	102.754	5800
	5900	34.300	201.870	136.696	102.481	196.891	103.325	5900
	6000	34.300	205.300	137.272	103.056	200.321	103.886	6000

TABLE IX.29. - THERMODYNAMIC FUNCTIONS FOR Mn($\alpha,\beta,\gamma,\delta,\ell$)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.994	INFINITE	0
	200	23.048	2.557	22.140	9.354	-2.437	34.324	200
	298.15	26.299	4.994	32.010	15.260	0.000	32.010	298.15
	300	26.346	5.043	32.173	15.364	0.049	32.011	300
	400	28.550	7.792	40.068	20.587	2.798	33.072	400
	500	30.354	10.740	46.637	25.158	5.746	35.146	500
	600	31.959	13.856	52.315	29.221	8.862	37.545	600
	700	33.458	17.128	57.355	32.887	12.134	40.021	700
	800	34.911	20.547	61.918	36.235	15.553	42.477	800
	900	36.368	24.110	66.114	39.325	19.116	44.874	900
α	980	37.566	27.067	69.261	41.641	22.073	46.737	980
β	980	37.572	29.293	71.532	41.641	24.299	46.737	980
	1000	37.699	30.046	72.293	42.247	25.052	47.241	1000
	1100	38.142	33.840	75.908	45.145	28.846	49.685	1100
	1200	38.533	37.673	79.243	47.849	32.679	52.011	1200
	1300	38.965	41.548	82.345	50.385	36.554	54.226	1300
β	1361	39.202	43.932	84.137	51.858	38.938	55.527	1361
γ	1361	43.095	46.054	85.696	51.858	41.060	55.527	1361
	1400	43.433	47.742	86.919	52.817	42.748	56.384	1400
γ	1412	43.513	48.264	87.290	53.109	43.270	56.645	1412
δ	1412	45.229	50.143	88.620	53.109	45.149	56.645	1412
	1500	45.988	54.159	91.380	55.274	49.165	58.603	1500
δ	1519	46.105	55.034	91.959	55.729	50.040	59.016	1519
ℓ	1519	46.024	67.092	99.897	55.729	62.098	59.016	1519
	1600	46.024	70.820	102.288	58.026	65.826	61.147	1600
	1700	46.024	75.422	105.078	60.712	70.428	63.650	1700
	1800	46.024	80.025	107.709	63.251	75.031	66.025	1800
	1900	46.024	84.627	110.198	65.657	79.633	68.285	1900
	2000	46.024	89.229	112.558	67.944	84.235	70.441	2000
	2100	46.024	93.832	114.804	70.122	88.838	72.500	2100
	2200	46.024	98.434	116.945	72.202	93.440	74.472	2200
	2300	46.024	103.037	118.991	74.192	98.043	76.363	2300
	2400	46.024	107.639	120.949	76.100	102.645	78.181	2400
	2500	46.024	112.241	122.828	77.932	107.247	79.929	2500
	2600	46.024	116.844	124.633	79.693	111.850	81.614	2600
	2700	46.024	121.446	126.370	81.390	116.452	83.240	2700
	2800	46.024	126.049	128.044	83.027	121.055	84.810	2800
	2900	46.024	130.651	129.659	84.607	125.657	86.329	2900
	3000	46.024	135.253	131.219	86.135	130.259	87.800	3000
	3100	46.024	139.856	132.729	87.614	134.862	89.225	3100
	3200	46.024	144.458	134.190	89.046	139.464	90.607	3200
	3300	46.024	149.061	135.606	90.436	144.067	91.949	3300
	3400	46.024	153.663	136.980	91.785	148.669	93.254	3400
	3500	46.024	158.265	138.314	93.095	153.271	94.522	3500
	3600	46.024	162.868	139.611	94.369	157.874	95.757	3600
	3700	46.024	167.470	140.872	95.609	162.476	96.959	3700
	3800	46.024	172.073	142.099	96.817	167.079	98.131	3800
	3900	46.024	176.675	143.294	97.993	171.681	99.274	3900
	4000	46.024	181.277	144.460	99.140	176.283	100.389	4000
	4100	46.024	185.880	145.596	100.260	180.886	101.478	4100
	4200	46.024	190.482	146.705	101.352	185.488	102.541	4200
	4300	46.024	195.085	147.788	102.420	190.091	103.581	4300
	4400	46.024	199.687	148.846	103.463	194.693	104.598	4400
	4500	46.024	204.289	149.881	104.483	199.295	105.593	4500
	4600	46.024	208.892	150.892	105.481	203.898	106.566	4600
	4700	46.024	213.494	151.882	106.458	208.500	107.520	4700
	4800	46.024	218.097	152.851	107.414	213.103	108.454	4800
	4900	46.024	222.699	153.800	108.351	217.705	109.370	4900
	5000	46.024	227.301	154.730	109.269	222.307	110.268	5000
	5100	46.024	231.904	155.641	110.170	226.910	111.149	5100
	5200	46.024	236.506	156.535	111.053	231.512	112.013	5200
	5300	46.024	241.109	157.411	111.919	236.115	112.861	5300
	5400	46.024	245.711	158.272	112.770	240.717	113.694	5400
	5500	46.024	250.313	159.116	113.605	245.319	114.513	5500
	5600	46.024	254.916	159.945	114.425	249.922	115.317	5600
	5700	46.024	259.518	160.760	115.231	254.524	116.107	5700
	5800	46.024	264.121	161.561	116.022	259.127	116.883	5800
	5900	46.024	268.723	162.347	116.801	263.729	117.647	5900
	6000	46.024	273.325	163.121	117.567	268.331	118.399	6000

TABLE IX.30. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Mo(cr,ℓ)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-4.585	INFINITE	0
200	21.507	2.333	19.476	7.810	-2.252	30.735	200
298.15	23.933	4.585	28.605	13.227	0.000	28.605	298.15
300	23.960	4.629	28.753	13.322	0.044	28.605	300
400	25.076	7.085	35.812	18.098	2.500	29.560	400
500	25.852	9.634	41.494	22.227	5.049	31.397	500
600	26.463	12.251	46.264	25.846	7.666	33.488	600
700	26.975	14.923	50.382	29.064	10.338	35.614	700
800	27.438	17.644	54.015	31.960	13.059	37.691	800
900	27.892	20.410	57.273	34.595	15.825	39.689	900
1000	28.369	23.223	60.236	37.013	18.638	41.598	1000
1100	28.900	26.086	62.964	39.250	21.501	43.418	1100
1200	29.487	29.005	65.504	41.333	24.420	45.154	1200
1300	30.141	31.986	67.889	43.285	27.401	46.812	1300
1400	30.861	35.035	70.149	45.124	30.450	48.399	1400
1500	31.647	38.160	72.305	46.864	33.575	49.921	1500
1600	32.500	41.367	74.374	48.520	36.782	51.385	1600
1700	33.422	44.663	76.372	50.099	40.078	52.796	1700
1800	34.417	48.054	78.310	51.613	43.469	54.160	1800
1900	35.491	51.549	80.199	53.068	46.964	55.481	1900
2000	36.650	55.155	82.048	54.471	50.570	56.764	2000
2100	37.899	58.882	83.867	55.828	54.297	58.011	2100
2200	39.240	62.738	85.660	57.143	58.153	59.227	2200
2300	40.674	66.734	87.436	58.421	62.149	60.415	2300
2400	42.171	70.875	89.198	59.667	66.290	61.578	2400
2500	43.883	75.175	90.954	60.884	70.590	62.718	2500
2600	45.934	79.663	92.713	62.074	75.078	63.837	2600
2700	48.426	84.377	94.492	63.242	79.792	64.940	2700
2800	51.440	89.365	96.306	64.390	84.780	66.027	2800
cr 2896	54.890	94.465	98.096	65.477	89.880	67.061	2896
ℓ 2896	37.656	130.447	110.521	65.477	125.862	67.061	2896
2900	37.656	130.597	110.573	65.540	126.012	67.121	2900
3000	37.656	134.363	111.850	67.062	129.778	68.590	3000
3100	37.656	138.128	113.084	68.527	133.543	70.006	3100
3200	37.656	141.894	114.280	69.938	137.309	71.371	3200
3300	37.656	145.660	115.439	71.299	141.075	72.689	3300
3400	37.656	149.425	116.563	72.614	144.840	73.963	3400
3500	37.656	153.191	117.654	73.886	148.606	75.196	3500
3600	37.656	156.956	118.715	75.116	152.371	76.390	3600
3700	37.656	160.722	119.747	76.309	156.137	77.548	3700
3800	37.656	164.488	120.751	77.465	159.903	78.672	3800
3900	37.656	168.253	121.729	78.587	163.668	79.763	3900
4000	37.656	172.019	122.683	79.678	167.434	80.824	4000
4100	37.656	175.784	123.612	80.738	171.199	81.857	4100
4200	37.656	179.550	124.520	81.770	174.965	82.862	4200
4300	37.656	183.316	125.406	82.774	178.731	83.841	4300
4400	37.656	187.081	126.272	83.753	182.496	84.795	4400
4500	37.656	190.847	127.118	84.707	186.262	85.726	4500
4600	37.656	194.612	127.946	85.638	190.027	86.635	4600
4700	37.656	198.378	128.755	86.547	193.793	87.523	4700
4800	37.656	202.144	129.548	87.435	197.559	88.390	4800
4900	37.656	205.909	130.325	88.302	201.324	89.238	4900
5000	37.656	209.675	131.085	89.150	205.090	90.067	5000
5100	37.656	213.440	131.831	89.980	208.855	90.879	5100
5200	37.656	217.206	132.562	90.792	212.621	91.674	5200
5300	37.656	220.972	133.280	91.587	216.387	92.452	5300
5400	37.656	224.737	133.983	92.365	220.152	93.214	5400
5500	37.656	228.503	134.674	93.128	223.918	93.962	5500
5600	37.656	232.268	135.353	93.876	227.683	94.695	5600
5700	37.656	236.034	136.019	94.610	231.449	95.414	5700
5800	37.656	239.800	136.674	95.329	235.215	96.120	5800
5900	37.656	243.565	137.318	96.036	238.980	96.813	5900
6000	37.656	247.331	137.951	96.729	242.746	97.493	6000

TABLE IX.31. - THERMODYNAMIC FUNCTIONS FOR N_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.670	INFINITE	0
200	29.107	5.813	179.986	150.922	-2.857	194.273	200
250	29.110	7.268	186.481	157.409	-1.402	192.089	250
298.15	29.124	8.670	191.610	162.530	0.000	191.610	298.15
300	29.125	8.724	191.790	162.710	0.054	191.610	300
350	29.165	10.181	196.282	167.193	1.511	191.965	350
400	29.249	11.641	200.181	171.078	2.971	192.754	400
500	29.582	14.581	206.740	177.578	5.911	194.918	500
600	30.109	17.564	212.177	182.904	8.894	197.354	600
700	30.754	20.607	216.866	187.428	11.937	199.814	700
800	31.434	23.716	221.017	191.372	15.046	202.210	800
900	32.090	26.893	224.758	194.877	18.223	204.511	900
1000	32.696	30.132	228.171	198.038	21.462	206.708	1000
1100	33.242	33.430	231.313	200.922	24.760	208.804	1100
1200	33.724	36.779	234.227	203.578	28.109	210.803	1200
1300	34.147	40.173	236.943	206.041	31.503	212.710	1300
1400	34.518	43.606	239.488	208.340	34.936	214.533	1400
1500	34.842	47.075	241.880	210.497	38.405	216.277	1500
1600	35.127	50.573	244.138	212.530	41.903	217.949	1600
1700	35.377	54.099	246.276	214.453	45.429	219.553	1700
1800	35.599	57.648	248.304	216.277	48.978	221.094	1800
1900	35.795	61.218	250.234	218.014	52.548	222.577	1900
2000	35.970	64.806	252.075	219.672	56.136	224.007	2000
2100	36.127	68.411	253.834	221.257	59.741	225.385	2100
2200	36.267	72.031	255.517	222.776	63.361	226.717	2200
2300	36.395	75.664	257.132	224.235	66.994	228.005	2300
2400	36.510	79.310	258.684	225.638	70.639	229.251	2400
2500	36.615	82.966	260.176	226.990	74.296	230.458	2500
2600	36.711	86.632	261.614	228.294	77.962	231.629	2600
2700	36.800	90.308	263.002	229.554	81.638	232.765	2700
2800	36.881	93.992	264.341	230.773	85.322	233.869	2800
2900	36.957	97.684	265.637	231.953	89.014	234.943	2900
3000	37.027	101.383	266.891	233.097	92.713	235.987	3000
3100	37.093	105.089	268.106	234.206	96.419	237.003	3100
3200	37.155	108.802	269.285	235.284	100.131	237.994	3200
3300	37.213	112.520	270.429	236.332	103.850	238.959	3300
3400	37.268	116.244	271.541	237.351	107.574	239.901	3400
3500	37.320	119.974	272.622	238.344	111.303	240.821	3500
3600	37.370	123.708	273.674	239.311	115.038	241.719	3600
3700	37.417	127.447	274.698	240.253	118.777	242.597	3700
3800	37.462	131.191	275.697	241.173	122.521	243.454	3800
3900	37.506	134.940	276.671	242.071	126.270	244.294	3900
4000	37.548	138.692	277.621	242.948	130.022	245.115	4000
4100	37.589	142.449	278.548	243.805	133.779	245.919	4100
4200	37.629	146.210	279.455	244.643	137.540	246.707	4200
4300	37.667	149.975	280.340	245.463	141.305	247.479	4300
4400	37.706	153.744	281.207	246.265	145.074	248.236	4400
4500	37.743	157.516	282.055	247.051	148.846	248.978	4500
4600	37.781	161.292	282.885	247.821	152.622	249.706	4600
4700	37.818	165.072	283.698	248.576	156.402	250.420	4700
4800	37.856	168.856	284.494	249.316	160.186	251.122	4800
4900	37.893	172.643	285.275	250.042	163.973	251.811	4900
5000	37.932	176.435	286.041	250.754	167.764	252.488	5000
5100	37.971	180.230	286.793	251.453	171.560	253.153	5100
5200	38.011	184.029	287.530	252.140	175.359	253.807	5200
5300	38.053	187.832	288.255	252.815	179.162	254.451	5300
5400	38.096	191.639	288.966	253.478	182.969	255.083	5400
5500	38.141	195.451	289.666	254.129	186.781	255.706	5500
5600	38.189	199.268	290.354	254.770	190.598	256.318	5600
5700	38.238	203.089	291.030	255.400	194.419	256.921	5700
5800	38.291	206.916	291.695	256.020	198.245	257.515	5800
5900	38.347	210.747	292.350	256.630	202.077	258.100	5900
6000	38.406	214.585	292.995	257.231	205.915	258.676	6000
6200	38.560	222.282	294.257	258.405	213.612	259.804	6200
6400	38.719	230.009	295.484	259.545	221.339	260.900	6400
6600	38.887	237.770	296.678	260.652	229.100	261.966	6600
6800	39.069	245.565	297.841	261.729	236.895	263.004	6800
7000	39.270	253.399	298.977	262.777	244.729	264.016	7000
7200	39.497	261.275	300.086	263.798	252.605	265.002	7200
7400	39.753	269.199	301.172	264.794	260.529	265.965	7400
7600	40.044	277.178	302.236	265.765	268.508	266.906	7600
7800	40.372	285.219	303.280	266.713	276.549	267.825	7800
8000	40.741	293.330	304.307	267.640	284.660	268.724	8000

TABLE IX.31. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	41.153	301.519	305.318	268.547	292.849	269.604	8200
8400	41.608	309.794	306.315	269.435	301.124	270.467	8400
8600	42.108	318.165	307.300	270.304	309.495	271.312	8600
8800	42.652	326.640	308.274	271.156	317.970	272.141	8800
9000	43.240	335.229	309.239	271.991	326.559	272.955	9000
9200	43.871	343.939	310.196	272.811	335.269	273.754	9200
9400	44.543	352.780	311.147	273.617	344.110	274.539	9400
9600	45.253	361.759	312.092	274.409	353.089	275.312	9600
9800	46.000	370.884	313.033	275.187	362.213	276.072	9800
10000	46.779	380.161	313.970	275.954	371.491	276.821	10000
10500	48.851	404.062	316.301	277.819	395.392	278.645	10500
11000	51.051	429.034	318.624	279.621	420.363	280.410	11000
11500	53.315	455.124	320.944	281.368	446.454	282.122	11500
12000	55.576	482.348	323.261	283.065	473.678	283.787	12000
12500	57.769	510.688	325.574	284.719	502.018	285.413	12500
13000	59.830	540.095	327.880	286.335	531.425	287.002	13000
13500	61.702	570.487	330.174	287.916	561.817	288.558	13500
14000	63.334	601.757	332.449	289.466	593.087	290.085	14000
14500	64.683	633.773	334.695	290.987	625.103	291.585	14500
15000	65.717	666.387	336.907	292.481	657.717	293.059	15000
15500	66.415	699.434	339.074	293.949	690.764	294.508	15500
16000	66.767	732.744	341.189	295.392	724.074	295.934	16000
16500	66.778	766.144	343.244	296.811	757.474	297.337	16500
17000	66.462	799.467	345.234	298.206	790.797	298.717	17000
17500	65.851	832.557	347.152	299.578	823.887	300.073	17500
18000	64.991	865.277	348.996	300.925	856.607	301.407	18000
18500	63.940	897.516	350.763	302.248	888.846	302.717	18500
19000	62.773	929.197	352.452	303.547	920.527	304.004	19000
19500	61.582	960.285	354.068	304.822	951.615	305.267	19500
20000	60.473	990.793	355.612	306.073	982.123	306.506	20000

TABLE IX.32. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Na(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.460	INFINITE	0
	200	25.998	3.803	40.519	21.504	-2.657	53.804	200
	298.15	28.230	6.460	51.300	29.633	0.000	51.300	298.15
	300	28.288	6.512	51.475	29.767	0.052	51.301	300
cr	371.01	31.505	8.623	57.777	34.536	2.163	51.948	371.01
ℓ	371.01	31.799	11.221	64.780	34.536	4.761	51.948	371.01
	400	31.511	12.139	67.161	36.815	5.679	52.965	400
	500	30.626	15.244	74.095	43.607	8.784	56.527	500
	600	29.900	18.269	79.612	49.164	11.809	59.930	600
	700	29.342	21.230	84.177	53.849	14.770	63.077	700
	800	28.966	24.143	88.068	57.889	17.683	65.964	800
	900	28.781	27.029	91.467	61.435	20.569	68.613	900
	1000	28.793	29.906	94.499	64.593	23.446	71.053	1000
	1100	29.006	32.794	97.251	67.438	26.334	73.311	1100
	1200	29.421	35.714	99.792	70.030	29.254	75.413	1200
	1300	30.040	38.685	102.170	72.411	32.225	77.381	1300
	1400	30.863	41.729	104.425	74.618	35.269	79.233	1400
	1500	31.889	44.865	106.588	76.678	38.405	80.985	1500
	1600	33.119	48.114	108.684	78.613	41.654	82.651	1600
	1700	34.553	51.495	110.734	80.442	45.035	84.242	1700
	1800	36.190	55.031	112.754	82.181	48.571	85.770	1800
	1900	38.031	58.740	114.759	83.843	52.280	87.243	1900
	2000	40.076	62.644	116.761	85.439	56.184	88.669	2000
	2100	42.327	66.762	118.770	86.979	60.302	90.055	2100
	2200	44.782	71.116	120.795	88.470	64.656	91.406	2200
	2300	47.445	75.726	122.844	89.919	69.266	92.728	2300

TABLE IX.33. - THERMODYNAMIC FUNCTIONS FOR Nb(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.241	INFINITE	0
	200	23.091	2.879	26.878	12.480	-2.362	38.685	200
	298.15	24.694	5.241	36.464	18.886	0.000	36.464	298.15
	300	24.710	5.287	36.617	18.994	0.046	36.464	300
	400	25.390	7.794	43.826	24.340	2.553	37.443	400
	500	25.898	10.359	49.548	28.829	5.118	39.311	500
	600	26.347	12.972	54.310	32.690	7.731	41.425	600
	700	26.769	15.628	58.403	36.078	10.387	43.565	700
	800	27.182	18.325	62.005	39.098	13.084	45.649	800
	900	27.594	21.064	65.230	41.825	15.823	47.649	900
	1000	27.999	23.844	68.158	44.314	18.603	49.555	1000
	1100	28.405	26.664	70.846	46.606	21.423	51.370	1100
	1200	28.797	29.524	73.334	48.731	24.283	53.098	1200
	1300	29.179	32.423	75.654	50.714	27.182	54.745	1300
	1400	29.590	35.361	77.832	52.574	30.120	56.317	1400
	1500	30.061	38.343	79.889	54.327	33.102	57.821	1500
	1600	30.605	41.376	81.846	55.986	36.135	59.261	1600
	1700	31.222	44.467	83.719	57.563	39.226	60.645	1700
	1800	31.903	47.622	85.523	59.066	42.381	61.978	1800
	1900	32.639	50.849	87.267	60.505	45.608	63.263	1900
	2000	33.430	54.152	88.961	61.885	48.911	64.506	2000
	2100	34.269	57.536	90.612	63.214	52.295	65.710	2100
	2200	35.195	61.009	92.228	64.496	55.768	66.879	2200
	2300	36.193	64.577	93.814	65.737	59.336	68.015	2300
	2400	37.310	68.251	95.377	66.939	63.010	69.123	2400
	2500	38.630	72.046	96.926	68.108	66.805	70.204	2500
	2600	40.252	75.987	98.472	69.246	70.746	71.262	2600
	2700	42.263	80.109	100.027	70.357	74.868	72.298	2700
cr	2750	43.432	82.251	100.813	70.904	77.010	72.809	2750
ℓ	2750	33.472	109.154	110.596	70.904	103.913	72.809	2750
	2800	33.472	110.828	111.199	71.618	105.587	73.490	2800
	2900	33.472	114.175	112.374	73.003	108.934	74.810	2900
	3000	33.472	117.522	113.508	74.334	112.281	76.081	3000
	3100	33.472	120.869	114.606	75.616	115.628	77.307	3100
	3200	33.472	124.217	115.669	76.851	118.976	78.489	3200
	3300	33.472	127.564	116.699	78.043	122.323	79.631	3300
	3400	33.472	130.911	117.698	79.195	125.670	80.736	3400
	3500	33.472	134.258	118.668	80.309	129.017	81.806	3500
	3600	33.472	137.605	119.611	81.387	132.364	82.843	3600
	3700	33.472	140.953	120.528	82.433	135.712	83.849	3700
	3800	33.472	144.300	121.421	83.447	139.059	84.826	3800
	3900	33.472	147.647	122.290	84.432	142.406	85.776	3900
	4000	33.472	150.994	123.138	85.389	145.753	86.699	4000
	4100	33.472	154.341	123.964	86.320	149.100	87.598	4100
	4200	33.472	157.689	124.771	87.226	152.448	88.474	4200
	4300	33.472	161.036	125.558	88.108	155.795	89.327	4300
	4400	33.472	164.383	126.328	88.968	159.142	90.159	4400
	4500	33.472	167.730	127.080	89.807	162.489	90.971	4500
	4600	33.472	171.077	127.816	90.625	165.836	91.764	4600
	4700	33.472	174.425	128.536	91.424	169.184	92.539	4700
	4800	33.472	177.772	129.240	92.205	172.531	93.296	4800
	4900	33.472	181.119	129.931	92.968	175.878	94.037	4900
	5000	33.472	184.466	130.607	93.714	179.225	94.762	5000
	5100	33.472	187.813	131.270	94.443	182.572	95.471	5100
	5200	33.472	191.161	131.920	95.158	185.920	96.166	5200
	5300	33.472	194.508	132.557	95.858	189.267	96.846	5300
	5400	33.472	197.855	133.183	96.543	192.614	97.514	5400
	5500	33.472	201.202	133.797	97.215	195.961	98.168	5500
	5600	33.472	204.549	134.400	97.873	199.308	98.809	5600
	5700	33.472	207.897	134.993	98.519	202.656	99.439	5700
	5800	33.472	211.244	135.575	99.153	206.003	100.057	5800
	5900	33.472	214.591	136.147	99.776	209.350	100.664	5900
	6000	33.472	217.938	136.709	100.386	212.697	101.260	6000

TABLE IX.34. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ne

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	138.030	117.244	-2.040	148.231	200
298.15	20.786	6.197	146.330	125.543	0.000	146.330	298.15
300	20.786	6.236	146.458	125.672	0.038	146.330	300
400	20.786	8.315	152.438	131.652	2.117	147.145	400
500	20.786	10.393	157.076	136.290	4.196	148.685	500
600	20.786	12.472	160.866	140.080	6.274	150.409	600
700	20.786	14.550	164.070	143.284	8.353	152.138	700
800	20.786	16.629	166.846	146.060	10.432	153.807	800
900	20.786	18.708	169.294	148.508	12.510	155.394	900
1000	20.786	20.786	171.484	150.698	14.589	156.896	1000
1100	20.786	22.865	173.466	152.679	16.667	158.313	1100
1200	20.786	24.944	175.274	154.488	18.746	159.652	1200
1300	20.786	27.022	176.938	156.152	20.825	160.919	1300
1400	20.786	29.101	178.478	157.692	22.903	162.119	1400
1500	20.786	31.179	179.912	159.126	24.982	163.258	1500
1600	20.786	33.258	181.254	160.468	27.061	164.341	1600
1700	20.786	35.337	182.514	161.728	29.139	165.373	1700
1800	20.786	37.415	183.702	162.916	31.218	166.359	1800
1900	20.786	39.494	184.826	164.040	33.296	167.302	1900
2000	20.786	41.573	185.892	165.106	35.375	168.205	2000
2100	20.786	43.651	186.906	166.120	37.454	169.071	2100
2200	20.786	45.730	187.873	167.087	39.532	169.904	2200
2300	20.786	47.808	188.797	168.011	41.611	170.706	2300
2400	20.786	49.887	189.682	168.896	43.690	171.478	2400
2500	20.786	51.966	190.531	169.744	45.768	172.223	2500
2600	20.786	54.044	191.346	170.560	47.847	172.943	2600
2700	20.786	56.123	192.130	171.344	49.926	173.639	2700
2800	20.786	58.202	192.886	172.100	52.004	174.313	2800
2900	20.786	60.280	193.616	172.829	54.083	174.967	2900
3000	20.786	62.359	194.320	173.534	56.161	175.600	3000
3100	20.786	64.437	195.002	174.216	58.240	176.215	3100
3200	20.786	66.516	195.662	174.876	60.319	176.812	3200
3300	20.786	68.595	196.302	175.515	62.397	177.393	3300
3400	20.786	70.673	196.922	176.136	64.476	177.959	3400
3500	20.786	72.752	197.525	176.738	66.555	178.509	3500
3600	20.786	74.831	198.110	177.324	68.633	179.045	3600
3700	20.786	76.909	198.680	177.893	70.712	179.568	3700
3800	20.786	78.988	199.234	178.448	72.790	180.079	3800
3900	20.786	81.066	199.774	178.988	74.869	180.577	3900
4000	20.786	83.145	200.300	179.514	76.948	181.063	4000
4100	20.786	85.224	200.814	180.027	79.026	181.539	4100
4200	20.786	87.302	201.314	180.528	81.105	182.004	4200
4300	20.786	89.381	201.804	181.017	83.184	182.459	4300
4400	20.786	91.460	202.281	181.495	85.262	182.904	4400
4500	20.786	93.538	202.749	181.962	87.341	183.339	4500
4600	20.786	95.617	203.205	182.419	89.419	183.766	4600
4700	20.786	97.695	203.652	182.866	91.498	184.185	4700
4800	20.786	99.774	204.090	183.304	93.577	184.595	4800
4900	20.786	101.853	204.519	183.732	95.655	184.997	4900
5000	20.786	103.931	204.939	184.152	97.734	185.392	5000
5100	20.786	106.010	205.350	184.564	99.813	185.779	5100
5200	20.786	108.089	205.754	184.968	101.891	186.159	5200
5300	20.786	110.167	206.150	185.364	103.970	186.533	5300
5400	20.786	112.246	206.538	185.752	106.048	186.900	5400
5500	20.786	114.325	206.920	186.133	108.127	187.260	5500
5600	20.786	116.403	207.294	186.508	110.206	187.615	5600
5700	20.786	118.482	207.662	186.876	112.284	187.963	5700
5800	20.786	120.560	208.024	187.237	114.363	188.306	5800
5900	20.786	122.639	208.379	187.593	116.442	188.643	5900
6000	20.786	124.718	208.728	187.942	118.520	188.975	6000
6200	20.781	128.874	209.410	188.624	122.677	189.623	6200
6400	20.780	133.030	210.070	189.284	126.833	190.252	6400
6600	20.780	137.186	210.709	189.923	130.989	190.862	6600
6800	20.781	141.342	211.329	190.544	135.145	191.455	6800
7000	20.783	145.499	211.932	191.146	139.301	192.032	7000
7200	20.785	149.656	212.517	191.732	143.458	192.593	7200
7400	20.787	153.813	213.087	192.301	147.615	193.139	7400
7600	20.788	157.970	213.641	192.856	151.773	193.671	7600
7800	20.789	162.128	214.181	193.396	155.931	194.190	7800
8000	20.790	166.286	214.708	193.922	160.089	194.696	8000

TABLE IX.34. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	20.790	170.444	215.221	194.435	164.247	195.191	8200
8400	20.790	174.602	215.722	194.936	168.405	195.674	8400
8600	20.789	178.760	216.211	195.425	172.562	196.146	8600
8800	20.788	182.918	216.689	195.903	176.720	196.607	8800
9000	20.787	187.075	217.156	196.370	180.878	197.059	9000
9200	20.786	191.232	217.613	196.827	185.035	197.501	9200
9400	20.784	195.389	218.060	197.274	189.192	197.933	9400
9600	20.783	199.546	218.498	197.712	193.348	198.357	9600
9800	20.782	203.702	218.926	198.140	197.505	198.773	9800
10000	20.780	207.859	219.346	198.560	201.661	199.180	10000
10500	20.778	218.248	220.360	199.574	212.051	200.164	10500
11000	20.778	228.637	221.326	200.541	222.440	201.105	11000
11500	20.780	239.027	222.250	201.465	232.829	202.004	11500
12000	20.785	249.418	223.134	202.350	243.220	202.866	12000
12500	20.793	259.812	223.983	203.198	253.615	203.694	12500
13000	20.805	270.212	224.799	204.013	264.014	204.490	13000
13500	20.822	280.618	225.584	204.798	274.421	205.257	13500
14000	20.843	291.034	226.342	205.554	284.837	205.996	14000
14500	20.870	301.462	227.074	206.283	295.265	206.711	14500
15000	20.905	311.906	227.782	206.988	305.708	207.401	15000
15500	20.948	322.368	228.468	207.670	316.171	208.070	15500
16000	21.002	332.855	229.134	208.330	326.658	208.718	16000
16500	21.069	343.373	229.781	208.971	337.175	209.346	16500
17000	21.153	353.927	230.411	209.592	347.730	209.957	17000
17500	21.255	364.528	231.026	210.196	358.331	210.550	17500
18000	21.380	375.186	231.626	210.783	368.988	211.127	18000
18500	21.532	385.913	232.214	211.354	379.715	211.689	18500
19000	21.715	396.723	232.791	211.911	390.525	212.237	19000
19500	21.936	407.634	233.358	212.453	401.437	212.771	19500
20000	22.199	418.666	233.916	212.983	412.468	213.293	20000

TABLE IX.35. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ni(cr, ℓ)

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-4.786	INFINITE	0
200	22.468	2.398	20.202	8.212	-2.388	32.142	200
298.15	25.987	4.786	29.870	13.818	0.000	29.870	298.15
300	26.041	4.834	30.031	13.917	0.048	29.870	300
400	28.493	7.562	37.863	18.957	2.776	30.922	400
500	31.047	10.539	44.497	23.420	5.753	32.992	500
600	34.855	13.814	50.459	27.436	9.028	35.413	600
700	30.573	17.275	55.810	31.132	12.489	37.969	700
800	30.909	20.326	59.883	34.476	15.540	40.458	800
900	31.451	23.447	63.558	37.507	18.661	42.824	900
1000	32.194	26.625	66.907	40.281	21.839	45.067	1000
1100	32.882	29.884	70.012	42.845	25.098	47.196	1100
1200	33.677	33.198	72.895	45.230	28.412	49.219	1200
1300	34.427	36.601	75.619	47.464	31.815	51.146	1300
1400	35.342	40.089	78.203	49.568	35.303	52.987	1400
1500	36.291	43.670	80.674	51.560	38.884	54.751	1500
1600	37.251	47.347	83.046	53.454	42.561	56.445	1600
1700	38.254	51.122	85.334	55.263	46.336	58.078	1700
cr 1728	38.550	52.197	85.962	55.755	47.411	58.525	1728
ℓ 1728	38.911	69.352	95.889	55.755	64.566	58.525	1728
1800	38.911	72.154	97.478	57.392	67.368	60.051	1800
1900	38.911	76.045	99.582	59.558	71.259	62.077	1900
2000	38.911	79.936	101.577	61.609	75.150	64.002	2000
2100	38.911	83.827	103.476	63.558	79.041	65.837	2100
2200	38.911	87.718	105.286	65.414	82.932	67.590	2200
2300	38.911	91.609	107.016	67.186	86.823	69.266	2300
2400	38.911	95.500	108.672	68.880	90.714	70.874	2400
2500	38.911	99.391	110.260	70.504	94.605	72.418	2500
2600	38.911	103.283	111.786	72.062	98.497	73.903	2600
2700	38.911	107.174	113.255	73.561	102.388	75.333	2700
2800	38.911	111.065	114.670	75.004	106.279	76.713	2800
2900	38.911	114.956	116.035	76.395	110.170	78.046	2900
3000	38.911	118.847	117.355	77.739	114.061	79.334	3000
3100	38.911	122.738	118.630	79.037	117.952	80.581	3100
3200	38.911	126.629	119.866	80.294	121.843	81.790	3200
3300	38.911	130.520	121.063	81.512	125.734	82.962	3300
3400	38.911	134.411	122.225	82.692	129.625	84.100	3400
3500	38.911	138.302	123.353	83.838	133.516	85.205	3500
3600	38.911	142.194	124.449	84.951	137.408	86.280	3600
3700	38.911	146.085	125.515	86.033	141.299	87.326	3700
3800	38.911	149.976	126.553	87.085	145.190	88.345	3800
3900	38.911	153.867	127.563	88.110	149.081	89.337	3900
4000	38.911	157.753	128.549	89.109	152.972	90.306	4000
4100	38.911	161.649	129.509	90.083	156.863	91.250	4100
4200	38.911	165.540	130.447	91.033	160.754	92.172	4200
4300	38.911	169.431	131.363	91.960	164.645	93.073	4300
4400	38.911	173.322	132.257	92.866	168.536	93.953	4400
4500	38.911	177.213	133.132	93.751	172.427	94.814	4500
4600	38.911	181.105	133.987	94.616	176.319	95.657	4600
4700	38.911	184.996	134.824	95.463	180.210	96.481	4700
4800	38.911	188.887	135.643	96.291	184.101	97.288	4800
4900	38.911	192.778	136.445	97.103	187.992	98.079	4900
5000	38.911	196.669	137.231	97.897	191.883	98.855	5000
5100	38.911	200.560	138.002	98.676	195.774	99.615	5100
5200	38.911	204.451	138.757	99.440	199.665	100.360	5200
5300	38.911	208.342	139.499	100.189	203.556	101.092	5300
5400	38.911	212.233	140.226	100.923	207.447	101.810	5400
5500	38.911	216.124	140.940	101.644	211.338	102.515	5500
5600	38.911	220.016	141.641	102.352	215.230	103.207	5600
5700	38.911	223.907	142.330	103.048	219.121	103.887	5700
5800	38.911	227.798	143.006	103.731	223.012	104.556	5800
5900	38.911	231.689	143.672	104.402	226.903	105.213	5900
6000	38.911	235.580	144.326	105.062	230.794	105.860	6000

TABLE IX.36. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR O_2

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-8.680	INFINITE	0
200	29.126	5.812	193.484	164.425	-2.868	207.826	200
298.15	29.378	8.680	205.149	176.036	0.000	205.149	298.15
300	29.388	8.734	205.331	176.216	0.054	205.150	300
400	30.115	11.706	213.875	184.610	3.026	206.310	400
500	31.092	14.766	220.698	191.167	6.086	208.527	500
600	32.090	17.925	226.456	196.581	9.245	211.048	600
700	32.990	21.180	231.472	201.214	12.500	213.615	700
800	33.745	24.518	235.928	205.280	15.838	216.130	800
900	34.361	27.925	239.939	208.912	19.244	218.557	900
1000	34.883	31.387	243.587	212.200	22.707	220.880	1000
1100	35.333	34.899	246.934	215.208	26.219	223.099	1100
1200	35.695	38.451	250.024	217.982	29.771	225.215	1200
1300	36.006	42.036	252.894	220.558	33.356	227.235	1300
1400	36.288	45.651	255.573	222.965	36.971	229.165	1400
1500	36.553	49.293	258.086	225.223	40.613	231.010	1500
1600	36.808	52.961	260.453	227.352	44.281	232.777	1600
1700	37.057	56.655	262.692	229.365	47.975	234.471	1700
1800	37.302	60.373	264.817	231.276	51.693	236.099	1800
1900	37.545	64.115	266.840	233.095	55.435	237.664	1900
2000	37.784	67.882	268.772	234.831	59.202	239.171	2000
2100	38.020	71.672	270.621	236.492	62.992	240.625	2100
2200	38.254	75.486	272.395	238.084	66.805	242.029	2200
2300	38.484	79.322	274.101	239.613	70.642	243.387	2300
2400	38.710	83.182	275.744	241.084	74.502	244.701	2400
2500	38.933	87.064	277.328	242.503	78.384	245.975	2500
2600	39.152	90.969	278.860	243.872	82.289	247.210	2600
2700	39.366	94.895	280.341	245.195	86.215	248.410	2700
2800	39.575	98.842	281.777	246.476	90.162	249.576	2800
2900	39.780	102.810	283.169	247.717	94.129	250.711	2900
3000	39.980	106.798	284.521	248.922	98.117	251.815	3000
3100	40.175	110.805	285.835	250.091	102.125	252.892	3100
3200	40.365	114.832	287.114	251.229	106.152	253.941	3200
3300	40.549	118.878	288.359	252.335	110.198	254.965	3300
3400	40.729	122.942	289.572	253.412	114.262	255.965	3400
3500	40.904	127.024	290.755	254.462	118.344	256.942	3500
3600	41.074	131.123	291.910	255.487	122.443	257.898	3600
3700	41.239	135.238	293.037	256.486	126.558	258.832	3700
3800	41.400	139.370	294.139	257.463	130.690	259.747	3800
3900	41.556	143.518	295.217	258.417	134.838	260.643	3900
4000	41.707	147.681	296.271	259.350	139.001	261.520	4000
4100	41.854	151.860	297.302	260.263	143.179	262.381	4100
4200	41.997	156.052	298.313	261.157	147.372	263.224	4200
4300	42.135	160.259	299.302	262.033	151.579	264.052	4300
4400	42.269	164.479	300.273	262.891	155.799	264.864	4400
4500	42.400	168.712	301.224	263.732	160.032	265.661	4500
4600	42.526	172.959	302.157	264.558	164.279	266.445	4600
4700	42.649	177.218	303.073	265.367	168.537	267.214	4700
4800	42.769	181.489	303.972	266.162	172.808	267.971	4800
4900	42.884	185.771	304.855	266.943	177.091	268.714	4900
5000	42.997	190.065	305.723	267.710	181.385	269.446	5000
5100	43.106	194.370	306.576	268.464	185.690	270.166	5100
5200	43.212	198.686	307.414	269.205	190.006	270.874	5200
5300	43.315	203.013	308.238	269.933	194.333	271.571	5300
5400	43.414	207.349	309.048	270.650	198.669	272.258	5400
5500	43.511	211.696	309.846	271.356	203.015	272.934	5500
5600	43.605	216.051	310.631	272.050	207.371	273.600	5600
5700	43.695	220.416	311.403	272.734	211.736	274.256	5700
5800	43.783	224.790	312.164	273.407	216.110	274.904	5800
5900	43.868	229.173	312.913	274.070	220.493	275.541	5900
6000	43.950	233.564	313.651	274.724	224.884	276.170	6000
6200	44.059	242.365	315.094	276.003	233.685	277.403	6200
6400	44.161	251.187	316.494	277.246	242.507	278.603	6400
6600	44.246	260.028	317.855	278.456	251.348	279.772	6600
6800	44.306	268.884	319.177	279.635	260.204	280.911	6800
7000	44.338	277.749	320.461	280.783	269.069	282.023	7000
7200	44.339	286.617	321.711	281.903	277.937	283.108	7200
7400	44.308	295.482	322.925	282.995	286.802	284.168	7400
7600	44.244	304.338	324.106	284.061	295.658	285.204	7600
7800	44.149	313.178	325.254	285.103	304.498	286.216	7800
8000	44.023	321.995	326.370	286.121	313.315	287.206	8000

TABLE IX.36. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	43.868	330.785	327.455	287.116	322.105	288.174	8200
8400	43.685	339.541	328.510	288.089	330.861	289.122	8400
8600	43.477	348.257	329.536	289.041	339.577	290.050	8600
8800	43.245	356.930	330.533	289.973	348.250	290.959	8800
9000	42.992	365.554	331.502	290.885	356.874	291.849	9000
9200	42.720	374.125	332.444	291.778	365.445	292.721	9200
9400	42.430	382.640	333.359	292.653	373.960	293.576	9400
9600	42.125	391.096	334.250	293.510	382.416	294.415	9600
9800	41.807	399.490	335.115	294.351	390.809	295.236	9800
10000	41.477	407.818	335.956	295.174	399.138	296.042	10000
10500	40.613	428.343	337.959	297.165	419.663	297.991	10500
11000	39.713	448.426	339.828	299.062	439.745	299.851	11000
11500	38.796	468.053	341.573	300.873	459.373	301.627	11500
12000	37.881	487.222	343.205	302.603	478.542	303.326	12000
12500	36.979	505.936	344.733	304.258	497.256	304.952	12500
13000	36.102	524.205	346.166	305.842	515.525	306.510	13000
13500	35.257	542.043	347.512	307.361	533.363	308.004	13500
14000	34.449	559.468	348.780	308.818	550.788	309.438	14000
14500	33.683	576.499	349.975	310.217	567.819	310.815	14500
15000	32.960	593.159	351.105	311.561	584.479	312.140	15000
15500	32.281	609.467	352.174	312.854	600.787	313.414	15500
16000	31.644	625.447	353.189	314.099	616.767	314.641	16000
16500	31.049	641.118	354.154	315.298	632.438	315.824	16500
17000	30.494	656.503	355.072	316.455	647.823	316.965	17000
17500	29.975	671.619	355.949	317.570	662.938	318.067	17500
18000	29.491	686.484	356.786	318.648	677.804	319.131	18000
18500	29.037	701.114	357.588	319.690	692.434	320.159	18500
19000	28.611	715.525	358.357	320.697	706.845	321.154	19000
19500	28.210	729.730	359.095	321.673	721.050	322.118	19500
20000	27.830	743.739	359.804	322.617	735.059	323.051	20000

TABLE IX.37. - THERMODYNAMIC FUNCTIONS FOR P(cr,white,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.360	INFINITE	0
	200	21.086	3.151	32.139	16.385	-2.209	43.185	200
	298.15	23.824	5.360	41.090	23.112	0.000	41.090	298.15
	300	23.869	5.404	41.238	23.224	0.044	41.090	300
cr	317.30	24.267	5.821	42.587	24.243	0.461	41.136	317.30
ℓ	317.30	26.120	6.480	44.664	24.243	1.120	41.136	317.30
	400	26.120	8.640	50.714	29.115	3.280	42.515	400
	500	26.120	11.252	56.542	34.039	5.892	44.759	500
	600	26.120	13.864	61.305	38.198	8.504	47.132	600
	700	26.120	16.476	65.331	41.794	11.116	49.451	700
	800	26.120	19.088	68.819	44.959	13.728	51.659	800
	900	26.120	21.700	71.895	47.785	16.340	53.740	900
	1000	26.120	24.312	74.647	50.336	18.952	55.696	1000
	1100	26.120	26.924	77.137	52.661	21.564	57.533	1100
	1200	26.120	29.536	79.410	54.796	24.176	59.263	1200
	1300	26.120	32.148	81.500	56.771	26.788	60.894	1300
	1400	26.120	34.760	83.436	58.608	29.400	62.436	1400
	1500	26.120	37.372	85.238	60.324	32.012	63.897	1500
	1600	26.120	39.984	86.924	61.934	34.624	65.284	1600
	1700	26.120	42.596	88.507	63.451	37.236	66.604	1700
	1800	26.120	45.208	90.000	64.885	39.848	67.863	1800
	1900	26.120	47.820	91.413	66.244	42.460	69.065	1900
	2000	26.120	50.432	92.752	67.536	45.072	70.216	2000
	2100	26.120	53.044	94.027	68.768	47.684	71.320	2100
	2200	26.120	55.656	95.242	69.944	50.296	72.380	2200
	2300	26.120	58.268	96.403	71.069	52.908	73.400	2300
	2400	26.120	60.880	97.515	72.148	55.520	74.381	2400
	2500	26.120	63.492	98.581	73.184	58.132	75.328	2500
	2600	26.120	66.104	99.605	74.181	60.744	76.242	2600
	2700	26.120	68.716	100.591	75.141	63.356	77.126	2700
	2800	26.120	71.328	101.541	76.067	65.968	77.981	2800
	2900	26.120	73.940	102.458	76.961	68.580	78.809	2900
	3000	26.120	76.552	103.343	77.826	71.192	79.612	3000
	3100	26.120	79.164	104.200	78.663	73.804	80.392	3100
	3200	26.120	81.776	105.029	79.474	76.416	81.149	3200
	3300	26.120	84.388	105.833	80.261	79.028	81.885	3300
	3400	26.120	87.000	106.612	81.024	81.640	82.601	3400
	3500	26.120	89.612	107.369	81.766	84.252	83.298	3500
	3600	26.120	92.224	108.105	82.488	86.864	83.976	3600
	3700	26.120	94.836	108.821	83.190	89.476	84.638	3700
	3800	26.120	97.448	109.518	83.873	92.088	85.284	3800
	3900	26.120	100.060	110.196	84.540	94.700	85.914	3900
	4000	26.120	102.672	110.857	85.189	97.312	86.529	4000
	4100	26.120	105.284	111.502	85.823	99.924	87.131	4100
	4200	26.120	107.896	112.132	86.442	102.536	87.718	4200
	4300	26.120	110.508	112.746	87.047	105.148	88.293	4300
	4400	26.120	113.120	113.347	87.638	107.760	88.856	4400
	4500	26.120	115.732	113.934	88.216	110.372	89.407	4500
	4600	26.120	118.344	114.508	88.781	112.984	89.946	4600
	4700	26.120	120.956	115.070	89.334	115.596	90.475	4700
	4800	26.120	123.568	115.620	89.876	118.208	90.993	4800
	4900	26.120	126.180	116.158	90.407	120.820	91.501	4900
	5000	26.120	128.792	116.686	90.927	123.432	91.999	5000
	5100	26.120	131.404	117.203	91.438	126.044	92.489	5100
	5200	26.120	134.016	117.710	91.938	128.656	92.969	5200
	5300	26.120	136.628	118.208	92.429	131.268	93.440	5300
	5400	26.120	139.240	118.696	92.911	133.880	93.904	5400
	5500	26.120	141.852	119.175	93.384	136.492	94.359	5500
	5600	26.120	144.464	119.646	93.849	139.104	94.806	5600
	5700	26.120	147.076	120.108	94.306	141.716	95.246	5700
	5800	26.120	149.688	120.563	94.754	144.328	95.678	5800
	5900	26.120	152.300	121.009	95.196	146.940	96.104	5900
	6000	26.120	154.912	121.448	95.629	149.552	96.523	6000

TABLE IX.38. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Pb(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.870	INFINITE	0
	200	25.771	4.293	54.328	32.861	-2.577	67.211	200
	298.15	26.650	6.870	64.800	41.758	0.000	64.800	298.15
	300	26.670	6.919	64.965	41.901	0.049	64.801	300
	350	27.242	8.267	69.118	45.499	1.397	65.127	350
	400	27.801	9.643	72.793	48.685	2.773	65.860	400
	450	28.298	11.046	76.097	51.550	4.176	66.817	450
	500	28.776	12.473	79.103	54.158	5.603	67.898	500
	550	29.271	13.924	81.869	56.553	7.054	69.044	550
	600	29.736	15.399	84.436	58.771	8.529	70.221	600
cr	600.65	29.741	15.419	84.468	58.798	8.549	70.236	600.65
ℓ	600.65	30.627	20.231	92.480	58.798	13.361	70.236	600.65
	700	30.313	23.258	97.145	63.919	16.388	73.733	700
	800	29.979	26.273	101.171	68.330	19.403	76.917	800
	900	29.660	29.255	104.683	72.178	22.385	79.811	900
	1000	29.369	32.206	107.793	75.587	25.336	82.457	1000
	1100	29.116	35.130	110.580	78.644	28.260	84.889	1100
	1200	28.903	38.030	113.104	81.412	31.160	87.137	1200
	1300	28.731	40.912	115.410	83.940	34.042	89.224	1300
	1400	28.602	43.778	117.534	86.264	36.908	91.172	1400
	1500	28.513	46.633	119.504	88.415	39.763	92.995	1500
	1600	28.463	49.482	121.343	90.417	42.612	94.710	1600
	1700	28.451	52.327	123.068	92.287	45.457	96.328	1700
	1800	28.475	55.173	124.694	94.043	48.303	97.859	1800
	1900	28.532	58.023	126.235	95.697	51.153	99.313	1900
	2000	28.620	60.881	127.701	97.261	54.011	100.696	2000
	2100	28.737	63.748	129.100	98.744	56.878	102.015	2100
	2200	28.881	66.629	130.440	100.154	59.759	103.277	2200
	2300	29.048	69.525	131.728	101.499	62.655	104.486	2300
	2400	29.238	72.439	132.968	102.785	65.569	105.647	2400
	2500	29.446	75.373	134.165	104.016	68.503	106.764	2500
	2600	29.671	78.329	135.325	105.198	71.459	107.840	2600
	2700	29.909	81.308	136.449	106.335	74.438	108.879	2700
	2800	30.160	84.311	137.541	107.430	77.441	109.884	2800
	2900	30.419	87.340	138.604	108.487	80.470	110.856	2900
	3000	30.684	90.395	139.640	109.508	83.525	111.798	3000
	3100	30.953	93.477	140.650	110.496	86.607	112.712	3100
	3200	31.223	96.586	141.637	111.454	89.716	113.601	3200
	3300	31.492	99.722	142.602	112.383	92.852	114.465	3300
	3400	31.757	102.884	143.546	113.286	96.014	115.307	3400
	3500	32.015	106.073	144.470	114.164	99.203	116.127	3500
	3600	32.264	109.287	145.376	115.018	102.417	116.927	3600

TABLE IX.39. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Rb(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-7.489	INFINITE	0
	200	27.446	4.657	65.302	42.018	-2.832	79.463	200
	298.15	31.060	7.489	76.780	51.662	0.000	76.780	298.15
	300	31.209	7.547	76.973	51.817	0.058	76.781	300
cr	312.47	32.385	7.943	78.266	52.847	0.454	76.814	312.47
ℓ	312.47	31.801	10.135	85.281	52.847	2.646	76.814	312.47
	400	30.824	12.868	92.998	60.828	5.379	79.550	400
	500	30.484	15.930	99.831	67.972	8.441	82.950	500
	600	30.440	18.974	105.382	73.758	11.485	86.240	600
	700	30.525	22.022	110.080	78.620	14.533	89.319	700
	800	30.709	25.082	114.166	82.813	17.593	92.175	800
	900	31.012	28.167	117.800	86.502	20.678	94.824	900
	1000	31.476	31.290	121.089	89.799	23.801	97.288	1000
	1100	32.151	34.470	124.119	92.783	26.981	99.591	1100
	1200	33.094	37.729	126.955	95.514	30.240	101.755	1200
	1300	34.366	41.099	129.652	98.037	33.610	103.798	1300
	1400	36.027	44.616	132.257	100.388	37.127	105.738	1400
	1500	38.140	48.320	134.812	102.598	40.831	107.591	1500
	1600	40.768	52.261	137.354	104.691	44.772	109.372	1600
	1700	43.976	56.493	139.919	106.688	49.004	111.093	1700
	1800	47.828	61.077	142.538	108.606	53.588	112.767	1800
	1900	52.387	66.082	145.243	110.463	58.593	114.404	1900
	2000	57.719	71.581	148.062	112.272	64.092	116.016	2000
	2100	63.887	77.654	151.024	114.046	70.165	117.612	2100

TABLE IX.40. - THERMODYNAMIC FUNCTIONS FOR S(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.412	INFINITE	0
	200	19.360	2.333	23.655	11.992	-2.079	34.052	200
	298.15	22.690	4.412	32.070	17.272	0.000	32.070	298.15
	300	22.737	4.454	32.211	17.364	0.042	32.070	300
α	368.30	24.237	6.061	37.031	20.574	1.649	32.554	368.30
β	368.30	24.773	6.462	38.119	20.574	2.050	32.554	368.30
β	388.36	25.180	6.963	39.444	21.515	2.551	32.876	388.36
ℓ	388.36	31.710	8.684	43.875	21.515	4.272	32.876	388.36
	400	32.369	9.058	44.824	22.180	4.646	33.210	400
	428.15	36.595	10.002	47.104	23.743	5.590	34.048	428.15
	432.25	48.833	10.173	47.502	23.966	5.761	34.173	432.25
	453.15	42.472	11.118	49.638	25.103	6.706	34.839	453.15
	500	38.026	12.993	53.578	27.593	8.581	36.417	500
	550	35.614	14.827	57.076	30.118	10.415	38.140	550
	600	34.371	16.573	60.116	32.494	12.161	39.847	600
	650	33.493	18.270	62.832	34.725	13.858	41.513	650
	700	32.451	19.920	65.279	36.822	15.508	43.124	700
	717	31.992	20.468	66.052	37.505	16.056	43.659	717
	800	32.000	23.124	69.557	40.652	18.712	46.167	800
	900	32.000	26.324	73.326	44.077	21.912	48.980	900
	1000	32.000	29.524	76.698	47.174	25.112	51.586	1000
	1100	32.000	32.724	79.748	49.999	28.312	54.010	1100
	1200	32.000	35.924	82.532	52.595	31.512	56.272	1200
	1300	32.000	39.124	85.093	54.998	34.712	58.392	1300
	1400	32.000	42.324	87.465	57.233	37.912	60.385	1400
	1500	32.000	45.524	89.672	59.323	41.112	62.265	1500
	1600	32.000	48.724	91.738	61.285	44.312	64.043	1600
	1700	32.000	51.924	93.678	63.134	47.512	65.730	1700
	1800	32.000	55.124	95.507	64.882	50.712	67.334	1800
	1900	32.000	58.324	97.237	66.540	53.912	68.862	1900
	2000	32.000	61.524	98.878	68.116	57.112	70.322	2000
	2100	32.000	64.724	100.440	69.619	60.312	71.720	2100
	2200	32.000	67.924	101.928	71.054	63.512	73.059	2200
	2300	32.000	71.124	103.351	72.427	66.712	74.346	2300
	2400	32.000	74.324	104.713	73.744	69.912	75.583	2400
	2500	32.000	77.524	106.019	75.009	73.112	76.774	2500
	2600	32.000	80.724	107.274	76.226	76.312	77.923	2600
	2700	32.000	83.924	108.482	77.399	79.512	79.033	2700
	2800	32.000	87.124	109.645	78.530	82.712	80.106	2800
	2900	32.000	90.324	110.768	79.622	85.912	81.144	2900
	3000	32.000	93.524	111.853	80.679	89.112	82.149	3000
	3100	32.000	96.724	112.902	81.701	92.312	83.124	3100
	3200	32.000	99.924	113.918	82.692	95.512	84.071	3200
	3300	32.000	103.124	114.903	83.654	98.712	84.990	3300
	3400	32.000	106.324	115.858	84.587	101.912	85.884	3400
	3500	32.000	109.524	116.786	85.494	105.112	86.754	3500
	3600	32.000	112.724	117.687	86.375	108.312	87.601	3600
	3700	32.000	115.924	118.564	87.234	111.512	88.426	3700
	3800	32.000	119.124	119.418	88.069	114.712	89.230	3800
	3900	32.000	122.324	120.249	88.884	117.912	90.015	3900
	4000	32.000	125.524	121.059	89.678	121.112	90.781	4000
	4100	32.000	128.724	121.849	90.453	124.312	91.529	4100
	4200	32.000	131.924	122.620	91.210	127.512	92.260	4200
	4300	32.000	135.124	123.373	91.949	130.712	92.975	4300
	4400	32.000	138.324	124.109	92.672	133.912	93.674	4400
	4500	32.000	141.524	124.828	93.378	137.112	94.359	4500
	4600	32.000	144.724	125.531	94.070	140.312	95.029	4600
	4700	32.000	147.924	126.220	94.746	143.512	95.685	4700
	4800	32.000	151.124	126.893	95.409	146.712	96.328	4800
	4900	32.000	154.324	127.553	96.058	149.912	96.959	4900
	5000	32.000	157.524	128.200	96.695	153.112	97.577	5000
	5100	32.000	160.724	128.833	97.319	156.312	98.184	5100
	5200	32.000	163.924	129.455	97.931	159.512	98.779	5200
	5300	32.000	167.124	130.064	98.531	162.712	99.364	5300
	5400	32.000	170.324	130.662	99.121	165.912	99.938	5400
	5500	32.000	173.524	131.250	99.700	169.112	100.502	5500
	5600	32.000	176.724	131.826	100.268	172.312	101.056	5600
	5700	32.000	179.924	132.393	100.827	175.512	101.601	5700
	5800	32.000	183.124	132.949	101.376	178.712	102.137	5800
	5900	32.000	186.324	133.496	101.916	181.912	102.664	5900
	6000	32.000	189.524	134.034	102.447	185.112	103.182	6000

TABLE IX.41. - THERMODYNAMIC FUNCTIONS FOR Si(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-3.217	INFINITE	0
	200	15.656	1.452	11.683	4.422	-1.765	20.509	200
	298.15	19.789	3.217	18.810	8.019	0.000	18.810	298.15
	300	19.855	3.254	18.933	8.085	0.037	18.810	300
	400	22.301	5.377	25.023	11.580	2.160	19.624	400
	500	23.610	7.678	30.152	14.796	4.461	21.231	500
	600	24.472	10.085	34.537	17.730	6.867	23.092	600
	700	25.123	12.566	38.361	20.410	9.348	25.006	700
	800	25.662	15.106	41.752	22.870	11.888	26.891	800
	900	26.135	17.696	44.802	25.140	14.478	28.715	900
	1000	26.568	20.331	47.578	27.247	17.114	30.464	1000
	1100	26.974	23.009	50.130	29.213	19.791	32.138	1100
	1200	27.362	25.725	52.493	31.056	22.508	33.737	1200
	1300	27.737	28.480	54.698	32.790	25.263	35.265	1300
	1400	28.103	31.273	56.767	34.430	28.055	36.728	1400
	1500	28.462	34.101	58.719	35.985	30.883	38.130	1500
	1600	28.816	36.965	60.567	37.464	33.747	39.475	1600
cr	1690	29.131	39.572	62.152	38.737	36.355	40.640	1690
ℓ	1690	27.200	89.782	91.862	38.737	86.565	40.640	1690
	1700	27.200	90.054	92.023	39.050	86.837	40.942	1700
	1800	27.200	92.774	93.578	42.036	89.557	43.824	1800
	1900	27.200	95.494	95.048	44.788	92.277	46.481	1900
	2000	27.200	98.214	96.443	47.336	94.997	48.945	2000
	2100	27.200	100.934	97.770	49.706	97.717	51.239	2100
	2200	27.200	103.654	99.036	51.920	100.437	53.383	2200
	2300	27.200	106.374	100.245	53.995	103.157	55.394	2300
	2400	27.200	109.094	101.402	55.946	105.877	57.287	2400
	2500	27.200	111.814	102.513	57.787	108.597	59.074	2500
	2600	27.200	114.534	103.580	59.528	111.317	60.765	2600
	2700	27.200	117.254	104.606	61.179	114.037	62.370	2700
	2800	27.200	119.974	105.595	62.747	116.757	63.896	2800
	2900	27.200	122.694	106.550	64.241	119.477	65.351	2900
	3000	27.200	125.414	107.472	65.667	122.197	66.740	3000
	3100	27.200	128.134	108.364	67.030	124.917	68.068	3100
	3200	27.200	130.854	109.227	68.335	127.637	69.341	3200
	3300	27.200	133.574	110.064	69.587	130.357	70.562	3300
	3400	27.200	136.294	110.876	70.790	133.077	71.736	3400
	3500	27.200	139.014	111.665	71.946	135.797	72.866	3500
	3600	27.200	141.734	112.431	73.060	138.517	73.954	3600
	3700	27.200	144.454	113.176	74.135	141.237	75.004	3700
	3800	27.200	147.174	113.902	75.172	143.957	76.018	3800
	3900	27.200	149.894	114.608	76.174	146.677	76.999	3900
	4000	27.200	152.614	115.297	77.143	149.397	77.948	4000
	4100	27.200	155.334	115.969	78.082	152.117	78.867	4100
	4200	27.200	158.054	116.624	78.992	154.837	79.758	4200
	4300	27.200	160.774	117.264	79.875	157.557	80.623	4300
	4400	27.200	163.494	117.889	80.732	160.277	81.463	4400
	4500	27.200	166.214	118.501	81.564	162.997	82.279	4500
	4600	27.200	168.934	119.098	82.374	165.717	83.073	4600
	4700	27.200	171.654	119.683	83.161	168.437	83.846	4700
	4800	27.200	174.374	120.256	83.928	171.157	84.598	4800
	4900	27.200	177.094	120.817	84.675	173.877	85.332	4900
	5000	27.200	179.814	121.366	85.404	176.597	86.047	5000
	5100	27.200	182.534	121.905	86.114	179.317	86.745	5100
	5200	27.200	185.254	122.433	86.807	182.037	87.426	5200
	5300	27.200	187.974	122.951	87.484	184.757	88.092	5300
	5400	27.200	190.694	123.460	88.146	187.477	88.742	5400
	5500	27.200	193.414	123.959	88.793	190.197	89.378	5500
	5600	27.200	196.134	124.449	89.425	192.917	90.000	5600
	5700	27.200	198.854	124.930	90.044	195.637	90.608	5700
	5800	27.200	201.574	125.403	90.649	198.357	91.204	5800
	5900	27.200	204.294	125.868	91.242	201.077	91.788	5900
	6000	27.200	207.014	126.326	91.823	203.797	92.359	6000

TABLE IX.42. - THERMODYNAMIC FUNCTIONS FOR Sn(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.323	INFINITE	0
	200	25.500	3.738	40.683	21.994	-2.585	53.609	200
	298.15	27.112	6.323	51.180	29.973	0.000	51.180	298.15
	300	27.144	6.373	51.348	30.104	0.050	51.181	300
	350	28.026	7.752	55.598	33.448	1.429	51.514	350
	400	28.904	9.176	59.398	36.459	2.853	52.266	400
	450	29.887	10.645	62.857	39.202	4.322	53.254	450
	500	31.036	12.167	66.065	41.730	5.844	54.376	500
cr	505.12	31.158	12.326	66.381	41.978	6.003	54.496	505.12
ℓ	505.12	29.415	19.522	80.626	41.978	13.199	54.496	505.12
	600	28.663	22.273	85.620	48.498	15.950	59.036	600
	700	28.249	25.116	90.003	54.123	18.793	63.156	700
	800	28.043	27.930	93.760	58.848	21.607	66.752	800
	900	27.957	30.729	97.057	62.914	24.406	69.940	900
	1000	27.945	33.524	100.002	66.478	27.201	72.801	1000
	1100	27.979	36.319	102.667	69.649	29.996	75.397	1100
	1200	28.044	39.120	105.104	72.503	32.797	77.773	1200
	1300	28.130	41.929	107.352	75.099	35.606	79.963	1300
	1400	28.229	44.747	109.440	77.478	38.424	81.994	1400
	1500	28.339	47.575	111.391	79.674	41.252	83.890	1500
	1600	28.455	50.415	113.224	81.715	44.092	85.666	1600
	1700	28.575	53.266	114.952	83.619	46.943	87.339	1700
	1800	28.698	56.130	116.589	85.406	49.807	88.919	1800
	1900	28.822	59.006	118.144	87.088	52.683	90.416	1900
	2000	28.947	61.894	119.626	88.679	55.571	91.840	2000
	2100	29.071	64.795	121.041	90.186	58.472	93.197	2100
	2200	29.195	67.708	122.396	91.620	61.385	94.494	2200
	2300	29.318	70.634	123.697	92.986	64.311	95.735	2300
	2400	29.439	73.572	124.947	94.292	67.249	96.927	2400
	2500	29.559	76.522	126.151	95.543	70.199	98.072	2500
	2600	29.676	79.484	127.313	96.742	73.161	99.174	2600
	2700	29.792	82.457	128.435	97.895	76.134	100.237	2700
	2800	29.905	85.442	129.521	99.006	79.119	101.264	2800
	2900	30.015	88.438	130.572	100.076	82.115	102.256	2900
	3000	30.123	91.445	131.591	101.110	85.122	103.217	3000
	3100	30.228	94.462	132.581	102.109	88.139	104.149	3100
	3200	30.331	97.490	133.542	103.076	91.167	105.052	3200
	3300	30.431	100.528	134.477	104.014	94.205	105.930	3300
	3400	30.528	103.576	135.387	104.923	97.253	106.783	3400
	3500	30.622	106.634	136.273	105.806	100.311	107.613	3500
	3600	30.713	109.701	137.137	106.665	103.378	108.421	3600
	3700	30.801	112.776	137.980	107.500	106.453	109.209	3700
	3800	30.886	115.861	138.802	108.313	109.538	109.977	3800
	3900	30.968	118.953	139.606	109.105	112.630	110.726	3900
	4000	31.047	122.054	140.391	109.877	115.731	111.458	4000
	4100	31.123	125.163	141.158	110.631	118.840	112.173	4100
	4200	31.196	128.279	141.909	111.367	121.956	112.872	4200
	4300	31.266	131.402	142.644	112.085	125.079	113.556	4300
	4400	31.333	134.532	143.364	112.788	128.209	114.225	4400
	4500	31.396	137.668	144.068	113.475	131.345	114.881	4500
	4600	31.457	140.811	144.759	114.148	134.488	115.523	4600
	4700	31.514	143.959	145.436	114.807	137.636	116.152	4700

TABLE IX.43. - THERMODYNAMIC FUNCTIONS FOR Sr(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.558	INFINITE	0
	200	25.777	3.978	44.516	24.626	-2.580	57.417	200
	298.15	26.830	6.558	54.999	33.003	0.000	54.999	298.15
	300	26.850	6.608	55.165	33.139	0.050	55.000	300
	400	27.847	9.344	63.031	39.670	2.786	56.065	400
	500	28.664	12.171	69.335	44.993	5.613	58.109	500
	600	29.386	15.074	74.626	49.502	8.516	60.433	600
	700	30.039	18.046	79.205	53.426	11.488	62.795	700
	800	30.634	21.080	83.256	56.906	14.522	65.104	800
α	820	30.749	21.694	84.014	57.558	15.135	65.556	820
β	820	29.824	22.544	85.050	57.558	15.985	65.556	820
	900	30.146	24.943	87.841	60.127	18.384	67.414	900
	1000	30.548	27.977	91.038	63.061	21.419	69.619	1000
β	1041	30.713	29.233	92.269	64.187	22.675	70.487	1041
ℓ	1041	37.000	37.233	99.954	64.187	30.675	70.487	1041
	1100	37.000	39.416	101.994	66.161	32.858	72.123	1100
	1200	37.000	43.116	105.213	69.283	36.558	74.748	1200
	1300	37.000	46.816	108.175	72.162	40.258	77.207	1300
	1400	37.000	50.516	110.917	74.834	43.958	79.518	1400
	1500	37.000	54.216	113.470	77.326	47.658	81.698	1500
	1600	37.000	57.916	115.858	79.660	51.358	83.759	1600
	1700	37.000	61.616	118.101	81.856	55.058	85.714	1700
	1800	37.000	65.316	120.215	83.929	58.758	87.572	1800
	1900	37.000	69.016	122.216	85.892	62.458	89.343	1900
	2000	37.000	72.716	124.114	87.756	66.158	91.035	2000
	2100	37.000	76.416	125.919	89.530	69.858	92.653	2100
	2200	37.000	80.116	127.640	91.224	73.558	94.205	2200
	2300	37.000	83.816	129.285	92.843	77.258	95.695	2300
	2400	37.000	87.516	130.860	94.395	80.958	97.127	2400
	2500	37.000	91.216	132.370	95.884	84.658	98.507	2500
	2600	37.000	94.916	133.821	97.315	88.358	99.838	2600
	2700	37.000	98.616	135.218	98.693	92.058	101.122	2700
	2800	37.000	102.316	136.563	100.022	95.758	102.364	2800
	2900	37.000	106.016	137.862	101.304	99.458	103.566	2900
	3000	37.000	109.716	139.116	102.544	103.158	104.730	3000
	3100	37.000	113.416	140.329	103.743	106.858	105.859	3100
	3200	37.000	117.116	141.504	104.905	110.558	106.955	3200
	3300	37.000	120.816	142.642	106.032	114.258	108.019	3300
	3400	37.000	124.516	143.747	107.125	117.958	109.054	3400
	3500	37.000	128.216	144.820	108.186	121.658	110.060	3500
	3600	37.000	131.916	145.862	109.219	125.358	111.040	3600
	3700	37.000	135.616	146.876	110.223	129.058	111.995	3700
	3800	37.000	139.316	147.862	111.200	132.758	112.926	3800
	3900	37.000	143.016	148.824	112.153	136.458	113.834	3900
	4000	37.000	146.716	149.760	113.081	140.158	114.721	4000
	4100	37.000	150.416	150.674	113.987	143.858	115.587	4100
	4200	37.000	154.116	151.565	114.871	147.558	116.433	4200
	4300	37.000	157.816	152.436	115.735	151.258	117.260	4300
	4400	37.000	161.516	153.287	116.579	154.958	118.069	4400
	4500	37.000	165.216	154.118	117.404	158.658	118.861	4500
	4600	37.000	168.916	154.931	118.211	162.358	119.636	4600
	4700	37.000	172.616	155.727	119.000	166.058	120.396	4700
	4800	37.000	176.316	156.506	119.774	169.758	121.140	4800
	4900	37.000	180.016	157.269	120.531	173.458	121.870	4900
	5000	37.000	183.716	158.017	121.273	177.158	122.585	5000
	5100	37.000	187.416	158.749	122.001	180.858	123.287	5100
	5200	37.000	191.116	159.468	122.715	184.558	123.976	5200
	5300	37.000	194.816	160.173	123.415	188.258	124.652	5300
	5400	37.000	198.516	160.864	124.102	191.958	125.316	5400
	5500	37.000	202.216	161.543	124.776	195.658	125.969	5500
	5600	37.000	205.916	162.210	125.439	199.358	126.610	5600
	5700	37.000	209.616	162.865	126.090	203.058	127.240	5700
	5800	37.000	213.316	163.508	126.729	206.758	127.860	5800
	5900	37.000	217.016	164.141	127.358	210.458	128.470	5900
	6000	37.000	220.716	164.762	127.976	214.158	129.070	6000

TABLE IX.44. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Ta(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.681	INFINITE	0
	200	24.082	3.246	31.582	15.351	-2.435	43.756	200
	298.15	25.295	5.681	41.471	22.417	0.000	41.471	298.15
	300	25.308	5.728	41.628	22.535	0.047	41.471	300
	400	25.850	8.287	48.986	28.269	2.606	42.471	400
	500	26.347	10.897	54.808	33.014	5.216	44.376	500
	600	26.830	13.556	59.655	37.061	7.875	46.530	600
	700	27.219	16.260	63.822	40.594	10.579	48.709	700
	800	27.474	18.995	67.474	43.730	13.314	50.831	800
	900	27.653	21.752	70.721	46.552	16.071	52.864	900
	1000	27.937	24.529	73.647	49.118	18.848	54.799	1000
	1100	28.280	27.340	76.325	51.471	21.659	56.636	1100
	1200	28.664	30.187	78.802	53.647	24.506	58.381	1200
	1300	28.991	33.070	81.110	55.671	27.389	60.041	1300
	1400	29.198	35.981	83.267	57.566	30.300	61.624	1400
	1500	29.317	38.907	85.286	59.348	33.226	63.135	1500
	1600	29.445	41.845	87.182	61.029	36.164	64.579	1600
	1700	29.691	44.800	88.973	62.620	39.119	65.962	1700
	1800	30.113	47.789	90.682	64.132	42.108	67.288	1800
	1900	30.673	50.827	92.324	65.573	45.146	68.563	1900
	2000	31.189	53.922	93.912	66.950	48.241	69.791	2000
	2100	31.712	57.067	95.446	68.271	51.386	70.976	2100
	2200	32.252	60.265	96.934	69.540	54.584	72.123	2200
	2300	32.827	63.519	98.380	70.763	57.838	73.233	2300
	2400	33.459	66.832	99.790	71.943	61.151	74.310	2400
	2500	34.167	70.213	101.170	73.085	64.532	75.357	2500
	2600	34.970	73.669	102.525	74.191	67.988	76.376	2600
	2700	35.890	77.211	103.862	75.265	71.530	77.369	2700
	2800	36.946	80.851	105.186	76.310	75.170	78.339	2800
	2900	38.158	84.605	106.503	77.329	78.924	79.288	2900
	3000	39.546	88.489	107.819	78.323	82.808	80.217	3000
	3100	41.130	92.521	109.141	79.296	86.840	81.128	3100
	3200	42.930	96.722	110.475	80.249	91.041	82.025	3200
cr	3258	44.080	99.245	111.256	80.794	93.564	82.538	3258
ℓ	3258	41.840	135.813	122.480	80.794	130.132	82.538	3258
	3300	41.840	137.570	123.016	81.328	131.889	83.050	3300
	3400	41.840	141.754	124.265	82.573	136.073	84.244	3400
	3500	41.840	145.938	125.478	83.781	140.257	85.405	3500
	3600	41.840	150.122	126.657	84.956	144.441	86.534	3600
	3700	41.840	154.306	127.803	86.099	148.625	87.634	3700
	3800	41.840	158.490	128.919	87.211	152.809	88.706	3800
	3900	41.840	162.674	130.006	88.294	156.993	89.751	3900
	4000	41.840	166.858	131.065	89.350	161.177	90.771	4000
	4100	41.840	171.042	132.098	90.381	165.361	91.766	4100
	4200	41.840	175.226	133.106	91.386	169.545	92.739	4200
	4300	41.840	179.410	134.091	92.368	173.729	93.689	4300
	4400	41.840	183.594	135.053	93.327	177.913	94.618	4400
	4500	41.840	187.778	135.993	94.265	182.097	95.527	4500
	4600	41.840	191.962	136.913	95.182	186.281	96.417	4600
	4700	41.840	196.146	137.813	96.079	190.465	97.288	4700
	4800	41.840	200.330	138.693	96.958	194.649	98.141	4800
	4900	41.840	204.514	139.556	97.818	198.833	98.978	4900
	5000	41.840	208.698	140.401	98.662	203.017	99.798	5000
	5100	41.840	212.882	141.230	99.488	207.201	100.602	5100
	5200	41.840	217.066	142.042	100.299	211.385	101.391	5200
	5300	41.840	221.250	142.839	101.094	215.569	102.166	5300
	5400	41.840	225.434	143.621	101.874	219.753	102.926	5400
	5500	41.840	229.618	144.389	102.640	223.937	103.673	5500
	5600	41.840	233.802	145.143	103.393	228.121	104.407	5600
	5700	41.840	237.986	145.884	104.132	232.305	105.128	5700
	5800	41.840	242.170	146.611	104.858	236.489	105.837	5800
	5900	41.840	246.354	147.327	105.572	240.673	106.534	5900
	6000	41.840	250.538	148.030	106.273	244.857	107.220	6000

TABLE IX.45. - THERMODYNAMIC FUNCTIONS FOR Th(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.350	INFINITE	0
	200	25.261	3.820	41.549	22.451	-2.530	54.201	200
	298.15	26.230	6.350	51.830	30.532	0.000	51.830	298.15
	300	26.246	6.399	51.992	30.664	0.049	51.831	300
	400	27.087	9.065	59.658	36.995	2.715	52.870	400
	500	27.949	11.817	65.794	42.161	5.467	54.861	500
	600	28.831	14.656	70.968	46.542	8.306	57.125	600
	700	29.720	17.583	75.479	50.360	11.233	59.431	700
	800	30.611	20.600	79.505	53.756	14.250	61.693	800
	900	31.501	23.705	83.162	56.823	17.355	63.879	900
	1000	32.392	26.900	86.527	59.627	20.550	65.977	1000
	1100	33.283	30.184	89.656	62.217	23.834	67.989	1100
	1200	34.175	33.556	92.590	64.627	27.206	69.918	1200
	1300	35.069	37.019	95.361	66.885	30.669	71.770	1300
	1400	35.964	40.570	97.993	69.014	34.220	73.550	1400
	1500	36.860	44.211	100.505	71.030	37.861	75.264	1500
	1600	37.752	47.942	102.912	72.948	41.592	76.917	1600
α	1650	38.196	49.841	104.081	73.874	43.491	77.722	1650
β	1650	35.419	53.341	106.202	73.874	46.991	77.722	1650
	1700	36.017	55.127	107.268	74.841	48.777	78.576	1700
	1800	37.212	58.788	109.360	76.700	52.438	80.228	1800
	1900	38.407	62.569	111.404	78.473	56.219	81.815	1900
	2000	39.602	66.470	113.405	80.170	60.120	83.345	2000
β	2023	39.877	67.384	113.859	80.551	61.034	83.689	2023
ℓ	2023	46.000	81.184	120.681	80.551	74.834	83.689	2023
	2100	46.000	84.726	122.399	82.054	78.376	85.077	2100
	2200	46.000	89.326	124.539	83.937	82.976	86.823	2200
	2300	46.000	93.926	126.584	85.747	87.576	88.508	2300
	2400	46.000	98.526	128.542	87.489	92.176	90.135	2400
	2500	46.000	103.126	130.420	89.169	96.776	91.709	2500
	2600	46.000	107.726	132.224	90.791	101.376	93.233	2600
	2700	46.000	112.326	133.960	92.358	105.976	94.709	2700
	2800	46.000	116.926	135.633	93.873	110.576	96.141	2800
	2900	46.000	121.526	137.247	95.341	115.176	97.531	2900
	3000	46.000	126.126	138.806	96.764	119.776	98.881	3000
	3100	46.000	130.726	140.315	98.145	124.376	100.193	3100
	3200	46.000	135.326	141.775	99.486	128.976	101.470	3200
	3300	46.000	139.926	143.191	100.789	133.576	102.713	3300
	3400	46.000	144.526	144.564	102.056	138.176	103.924	3400
	3500	46.000	149.126	145.897	103.290	142.776	105.104	3500
	3600	46.000	153.726	147.193	104.492	147.376	106.255	3600
	3700	46.000	158.326	148.454	105.663	151.976	107.379	3700
	3800	46.000	162.926	149.680	106.805	156.576	108.476	3800
	3900	46.000	167.526	150.875	107.920	161.176	109.548	3900
	4000	46.000	172.126	152.040	109.008	165.776	110.596	4000
	4100	46.000	176.726	153.176	110.072	170.376	111.621	4100
	4200	46.000	181.326	154.284	111.111	174.976	112.623	4200
	4300	46.000	185.926	155.367	112.128	179.576	113.605	4300
	4400	46.000	190.526	156.424	113.123	184.176	114.566	4400
	4500	46.000	195.126	157.458	114.097	188.776	115.508	4500
	4600	46.000	199.726	158.469	115.050	193.376	116.431	4600
	4700	46.000	204.326	159.458	115.985	197.976	117.336	4700
	4800	46.000	208.926	160.427	116.900	202.576	118.223	4800
	4900	46.000	213.526	161.375	117.798	207.176	119.094	4900
	5000	46.000	218.126	162.304	118.679	211.776	119.949	5000
	5100	46.000	222.726	163.215	119.544	216.376	120.789	5100
	5200	46.000	227.326	164.109	120.392	220.976	121.613	5200
	5300	46.000	231.926	164.985	121.225	225.576	122.423	5300
	5400	46.000	236.526	165.845	122.044	230.176	123.219	5400
	5500	46.000	241.126	166.689	122.848	234.776	124.002	5500
	5600	46.000	245.726	167.518	123.638	239.376	124.772	5600
	5700	46.000	250.326	168.332	124.415	243.976	125.529	5700
	5800	46.000	254.926	169.132	125.179	248.576	126.274	5800
	5900	46.000	259.526	169.918	125.931	253.176	127.007	5900
	6000	46.000	264.126	170.691	126.670	257.776	127.729	6000

TABLE IX.46. - THERMODYNAMIC FUNCTIONS FOR Tl(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.824	INFINITE	0
	200	22.303	2.479	21.217	8.822	-2.345	32.942	200
	298.15	25.060	4.824	30.720	14.540	0.000	30.720	298.15
	300	25.092	4.870	30.875	14.640	0.046	30.720	300
	400	26.373	7.449	38.285	19.662	2.625	31.722	400
	500	27.363	10.136	44.277	24.005	5.312	33.653	500
	600	28.412	12.924	49.357	27.817	8.100	35.857	600
	700	29.506	15.820	53.819	31.219	10.996	38.110	700
	800	30.461	18.821	57.825	34.299	13.997	40.329	800
	900	31.001	21.899	61.449	37.117	17.075	42.477	900
	1000	32.682	25.045	64.763	39.718	20.221	44.542	1000
	1100	39.222	28.597	68.144	42.146	23.773	46.531	1100
α	1156	45.189	30.953	70.231	43.455	26.129	47.628	1156
β	1156	27.975	34.753	73.518	43.455	29.929	47.628	1156
	1200	28.566	35.997	74.574	44.577	31.173	48.597	1200
	1300	29.953	38.922	76.915	46.975	34.098	50.686	1300
	1400	31.403	41.990	79.187	49.195	37.166	52.641	1400
	1500	32.916	45.205	81.405	51.269	40.381	54.485	1500
	1600	34.494	48.575	83.580	53.220	43.751	56.235	1600
	1700	36.136	52.106	85.720	55.069	47.282	57.907	1700
	1800	37.842	55.804	87.833	56.831	50.980	59.511	1800
	1900	39.611	59.676	89.926	58.518	54.852	61.057	1900
β	1944	40.409	61.437	90.842	59.239	56.613	61.720	1944
ℓ	1944	46.800	76.037	98.353	59.239	71.213	61.720	1944
	2000	46.800	78.657	99.682	60.353	73.833	62.765	2000
	2100	46.800	83.337	101.965	62.280	78.513	64.578	2100
	2200	46.800	88.017	104.142	64.134	83.193	66.327	2200
	2300	46.800	92.697	106.222	65.919	87.873	68.017	2300
	2400	46.800	97.377	108.214	67.640	92.553	69.650	2400
	2500	46.800	102.057	110.125	69.302	97.233	71.231	2500
	2600	46.800	106.737	111.960	70.907	101.913	72.763	2600
	2700	46.800	111.417	113.726	72.461	106.593	74.247	2700
	2800	46.800	116.097	115.429	73.965	111.273	75.688	2800
	2900	46.800	120.777	117.071	75.423	115.953	77.087	2900
	3000	46.800	125.457	118.657	76.838	120.633	78.446	3000
	3100	46.800	130.137	120.192	78.212	125.313	79.768	3100
	3200	46.800	134.817	121.678	79.547	129.993	81.055	3200
	3300	46.800	139.497	123.118	80.846	134.673	82.308	3300
	3400	46.800	144.177	124.515	82.110	139.353	83.529	3400
	3500	46.800	148.857	125.872	83.341	144.033	84.719	3500
	3600	46.800	153.537	127.190	84.541	148.713	85.881	3600
	3700	46.800	158.217	128.472	85.711	153.393	87.015	3700
	3800	46.800	162.897	129.720	86.853	158.073	88.122	3800
	3900	46.800	167.577	130.936	87.967	162.753	89.204	3900
	4000	46.800	172.257	132.121	89.057	167.433	90.263	4000
	4100	46.800	176.937	133.277	90.121	172.113	91.298	4100
	4200	46.800	181.617	134.404	91.162	176.793	92.311	4200
	4300	46.800	186.297	135.505	92.181	181.473	93.302	4300
	4400	46.800	190.977	136.581	93.177	186.153	94.274	4400
	4500	46.800	195.657	137.633	94.154	190.833	95.226	4500
	4600	46.800	200.337	138.662	95.110	195.513	96.159	4600
	4700	46.800	205.017	139.668	96.048	200.193	97.074	4700
	4800	46.800	209.697	140.654	96.967	204.873	97.972	4800
	4900	46.800	214.377	141.619	97.868	209.553	98.853	4900
	5000	46.800	219.057	142.564	98.753	214.233	99.717	5000
	5100	46.800	223.737	143.491	99.621	218.913	100.567	5100
	5200	46.800	228.417	144.400	100.473	223.593	101.401	5200
	5300	46.800	233.097	145.291	101.310	228.273	102.221	5300
	5400	46.800	237.777	146.166	102.133	232.953	103.026	5400
	5500	46.800	242.457	147.025	102.941	237.633	103.818	5500
	5600	46.800	247.137	147.868	103.736	242.313	104.598	5600
	5700	46.800	251.817	148.696	104.518	246.993	105.364	5700
	5800	46.800	256.497	149.510	105.286	251.673	106.118	5800
	5900	46.800	261.177	150.310	106.043	256.353	106.860	5900
	6000	46.800	265.857	151.097	106.787	261.033	107.591	6000

TABLE IX.47. - THERMODYNAMIC FUNCTIONS FOR U(α,β,γ,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-(G^o(T)-H^o(0))/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-6.364	INFINITE	0
	200	25.835	3.738	39.542	20.851	-2.626	52.671	200
	298.15	27.665	6.364	50.200	28.855	0.000	50.200	298.15
	300	27.700	6.415	50.371	28.987	0.051	50.201	300
	400	29.688	9.283	58.607	35.400	2.919	51.310	400
	500	31.968	12.362	65.470	40.745	5.998	53.473	500
	600	34.659	15.690	71.529	45.379	9.326	55.986	600
	700	37.857	19.311	77.105	49.517	12.947	58.609	700
	800	41.614	23.280	82.399	53.299	16.916	61.254	800
	900	45.924	27.653	87.544	56.819	21.289	63.890	900
α	942	47.884	29.622	89.683	58.237	23.258	64.992	942
β	942	42.400	32.402	92.634	58.237	26.038	64.992	942
	1000	42.400	34.861	95.167	60.306	28.497	66.670	1000
β	1049	42.400	36.939	97.196	61.982	30.575	68.049	1049
γ	1049	38.300	41.669	101.705	61.982	35.305	68.049	1049
	1100	38.300	43.622	103.523	63.866	37.258	69.652	1100
	1200	38.300	47.452	106.855	67.312	41.088	72.615	1200
	1300	38.300	51.282	109.921	70.473	44.918	75.368	1300
	1400	38.300	55.112	112.759	73.393	48.748	77.939	1400
γ	1408	38.300	55.419	112.978	73.618	49.055	78.138	1408
ℓ	1408	47.739	64.139	119.171	73.618	57.775	78.138	1408
	1500	47.914	68.539	122.198	76.505	62.175	80.748	1500
	1600	48.126	73.340	125.297	79.459	66.976	83.436	1600
	1700	48.357	78.164	128.221	82.242	71.800	85.986	1700
	1800	48.602	83.012	130.992	84.874	76.648	88.410	1800
	1900	48.859	87.885	133.627	87.371	81.521	90.721	1900
	2000	49.126	92.785	136.140	89.747	86.421	92.929	2000
	2100	49.401	97.711	138.543	92.014	91.347	95.045	2100
	2200	49.683	102.665	140.848	94.182	96.301	97.075	2200
	2300	49.969	107.648	143.063	96.259	101.284	99.026	2300
	2400	50.261	112.659	145.195	98.254	106.295	100.906	2400
	2500	50.556	117.700	147.253	100.173	111.336	102.719	2500
	2600	50.854	122.770	149.242	102.022	116.406	104.470	2600
	2700	51.155	127.871	151.167	103.807	121.507	106.164	2700
	2800	51.458	133.001	153.032	105.532	126.637	107.805	2800
	2900	51.763	138.162	154.843	107.201	131.798	109.396	2900
	3000	52.070	143.354	156.604	108.819	136.990	110.940	3000
	3100	52.379	148.577	158.316	110.388	142.213	112.441	3100
	3200	52.689	153.830	159.984	111.912	147.466	113.901	3200
	3300	53.000	159.114	161.610	113.393	152.750	115.322	3300
	3400	53.312	164.430	163.197	114.835	158.066	116.707	3400
	3500	53.625	169.777	164.747	116.239	163.413	118.057	3500
	3600	53.939	175.155	166.262	117.607	168.791	119.375	3600
	3700	54.254	180.565	167.744	118.943	174.201	120.663	3700
	3800	54.569	186.006	169.195	120.246	179.642	121.921	3800
	3900	54.885	191.479	170.616	121.519	185.115	123.151	3900
	4000	55.201	196.983	172.010	122.764	190.619	124.355	4000

TABLE IX.48. - THERMODYNAMIC FUNCTIONS FOR V(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.640	INFINITE	0
	200	21.877	2.326	19.563	7.933	-2.314	31.133	200
	298.15	24.896	4.640	28.936	13.373	0.000	28.936	298.15
	300	24.931	4.686	29.090	13.470	0.046	28.936	300
	400	26.216	7.251	36.461	18.333	2.611	29.933	400
	500	26.942	9.912	42.395	22.571	5.272	31.851	500
	600	27.489	12.633	47.356	26.300	7.993	34.033	600
	700	28.028	15.408	51.631	29.620	10.768	36.249	700
	800	28.672	18.242	55.415	32.612	13.602	38.412	800
	900	29.355	21.143	58.831	35.339	16.503	40.494	900
	1000	30.088	24.115	61.961	37.846	19.475	42.486	1000
	1100	30.892	27.163	64.866	40.172	22.523	44.390	1100
	1200	31.778	30.296	67.591	42.345	25.656	46.211	1200
	1300	32.750	33.522	70.173	44.387	28.882	47.956	1300
	1400	33.805	36.849	72.638	46.317	32.209	49.632	1400
	1500	34.809	40.279	75.004	48.152	35.639	51.245	1500
	1600	35.867	43.812	77.284	49.902	39.172	52.802	1600
	1700	37.005	47.455	79.492	51.578	42.815	54.307	1700
	1800	38.226	51.216	81.642	53.188	46.576	55.766	1800
	1900	39.526	55.103	83.743	54.741	50.463	57.183	1900
	2000	40.918	59.124	85.805	56.243	54.484	58.563	2000
	2100	42.472	63.292	87.838	57.699	58.652	59.909	2100
cr	2190	44.140	67.187	89.654	58.975	62.547	61.094	2190
ℓ	2190	46.204	90.032	100.086	58.975	85.392	61.094	2190
	2200	46.204	90.494	100.296	59.163	85.854	61.272	2200
	2300	46.204	95.114	102.350	60.996	90.474	63.013	2300
	2400	46.204	99.735	104.317	62.760	95.095	64.694	2400
	2500	46.204	104.355	106.203	64.461	99.715	66.317	2500
	2600	46.204	108.976	108.015	66.101	104.336	67.886	2600
	2700	46.204	113.596	109.759	67.686	108.956	69.405	2700
	2800	46.204	118.216	111.439	69.219	113.576	70.876	2800
	2900	46.204	122.837	113.060	70.703	118.197	72.303	2900
	3000	46.204	127.457	114.627	72.141	122.817	73.688	3000
	3100	46.204	132.078	116.142	73.536	127.438	75.033	3100
	3200	46.204	136.698	117.609	74.890	132.058	76.340	3200
	3300	46.204	141.318	119.030	76.207	136.678	77.613	3300
	3400	46.204	145.939	120.410	77.487	141.299	78.851	3400
	3500	46.204	150.559	121.749	78.732	145.919	80.058	3500
	3600	46.204	155.180	123.051	79.945	150.540	81.234	3600
	3700	46.204	159.800	124.317	81.127	155.160	82.381	3700
	3800	46.204	164.420	125.549	82.280	159.780	83.501	3800
	3900	46.204	169.041	126.749	83.405	164.401	84.595	3900
	4000	46.204	173.661	127.919	84.503	169.021	85.663	4000
	4100	46.204	178.282	129.060	85.576	173.642	86.708	4100
	4200	46.204	182.902	130.173	86.625	178.262	87.730	4200
	4300	46.204	187.522	131.260	87.650	182.882	88.729	4300
	4400	46.204	192.143	132.322	88.654	187.503	89.708	4400
	4500	46.204	196.763	133.361	89.636	192.123	90.667	4500
	4600	46.204	201.384	134.376	90.597	196.744	91.606	4600
	4700	46.204	206.004	135.370	91.539	201.364	92.527	4700
	4800	46.204	210.624	136.343	92.463	205.984	93.429	4800
	4900	46.204	215.245	137.295	93.368	210.605	94.315	4900
	5000	46.204	219.865	138.229	94.256	215.225	95.184	5000
	5100	46.204	224.486	139.144	95.127	219.846	96.037	5100
	5200	46.204	229.106	140.041	95.982	224.466	96.874	5200
	5300	46.204	233.726	140.921	96.822	229.086	97.697	5300
	5400	46.204	238.347	141.785	97.646	233.707	98.506	5400
	5500	46.204	242.967	142.633	98.457	238.327	99.300	5500
	5600	46.204	247.588	143.465	99.253	242.948	100.082	5600
	5700	46.204	252.208	144.283	100.036	247.568	100.850	5700
	5800	46.204	256.828	145.086	100.806	252.188	101.606	5800
	5900	46.204	261.449	145.876	101.563	256.809	102.349	5900
	6000	46.204	266.069	146.653	102.308	261.429	103.081	6000

TABLE IX.49. - THERMODYNAMIC FUNCTIONS FOR W(cr, ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-4.973	INFINITE	0
	200	22.484	2.658	23.265	9.976	-2.315	34.841	200
	298.15	24.295	4.973	32.660	15.980	0.000	32.660	298.15
	300	24.312	5.018	32.810	16.084	0.045	32.660	300
	400	24.923	7.483	39.898	21.190	2.510	33.623	400
	500	25.352	9.997	45.506	25.512	5.024	35.458	500
	600	25.785	12.554	50.167	29.243	7.581	37.532	600
	700	26.233	15.155	54.175	32.525	10.182	39.630	700
	800	26.673	17.800	57.707	35.456	12.827	41.673	800
	900	27.105	20.489	60.873	38.108	15.516	43.633	900
	1000	27.566	23.222	63.752	40.530	18.249	45.503	1000
	1100	28.013	26.001	66.400	42.763	21.028	47.284	1100
	1200	28.469	28.825	68.857	44.837	23.852	48.981	1200
	1300	28.929	31.695	71.154	46.774	26.722	50.599	1300
	1400	29.393	34.611	73.315	48.593	29.638	52.145	1400
	1500	29.860	37.574	75.359	50.310	32.601	53.625	1500
	1600	30.331	40.583	77.301	51.937	35.610	55.045	1600
	1700	30.805	43.640	79.154	53.484	38.667	56.409	1700
	1800	31.284	46.744	80.929	54.959	41.771	57.722	1800
	1900	31.767	49.897	82.633	56.371	44.924	58.989	1900
	2000	32.253	53.098	84.275	57.726	48.125	60.212	2000
	2100	32.743	56.348	85.860	59.028	51.375	61.396	2100
	2200	33.237	59.647	87.395	60.283	54.674	62.543	2200
	2300	33.734	62.995	88.883	61.494	58.022	63.656	2300
	2400	34.234	66.393	90.329	62.665	61.420	64.738	2400
	2500	34.737	69.842	91.737	63.800	64.869	65.789	2500
	2600	35.245	73.341	93.109	64.901	68.368	66.814	2600
	2700	36.180	76.908	94.455	65.971	71.935	67.813	2700
	2800	37.478	80.589	95.794	67.012	75.616	68.788	2800
	2900	39.073	84.414	97.136	68.028	79.441	69.743	2900
	3000	41.042	88.416	98.493	69.021	83.443	70.678	3000
	3100	43.413	92.635	99.876	69.994	87.662	71.598	3100
	3200	46.027	97.107	101.295	70.949	92.134	72.503	3200
	3300	48.966	101.857	102.757	71.891	96.884	73.398	3300
	3400	52.270	106.913	104.266	72.821	101.940	74.284	3400
	3500	56.515	112.343	105.840	73.742	107.370	75.162	3500
	3600	61.696	118.248	107.503	74.656	113.275	76.037	3600
cr	3680	66.154	123.361	108.907	75.385	118.388	76.737	3680
ℓ	3680	35.564	158.758	118.526	75.385	153.785	76.737	3680
	3700	35.564	159.470	118.719	75.619	154.497	76.963	3700
	3800	35.564	163.026	119.667	76.766	158.053	78.074	3800
	3900	35.564	166.583	120.591	77.878	161.610	79.153	3900
	4000	35.564	170.139	121.492	78.957	165.166	80.200	4000
	4100	35.564	173.695	122.370	80.005	168.722	81.218	4100
	4200	35.564	177.252	123.227	81.024	172.279	82.208	4200
	4300	35.564	180.808	124.064	82.015	175.835	83.172	4300
	4400	35.564	184.365	124.881	82.980	179.392	84.110	4400
	4500	35.564	187.921	125.680	83.920	182.948	85.025	4500
	4600	35.564	191.477	126.462	84.837	186.504	85.918	4600
	4700	35.564	195.034	127.227	85.730	190.061	86.788	4700
	4800	35.564	198.590	127.976	86.603	193.617	87.639	4800
	4900	35.564	202.147	128.709	87.455	197.174	88.469	4900
	5000	35.564	205.703	129.427	88.287	200.730	89.281	5000
	5100	35.564	209.259	130.132	89.100	204.286	90.076	5100
	5200	35.564	212.816	130.822	89.896	207.843	90.853	5200
	5300	35.564	216.372	131.500	90.675	211.399	91.613	5300
	5400	35.564	219.929	132.164	91.437	214.956	92.358	5400
	5500	35.564	223.485	132.817	92.183	218.512	93.088	5500
	5600	35.564	227.041	133.458	92.915	222.068	93.803	5600
	5700	35.564	230.598	134.087	93.632	225.625	94.504	5700
	5800	35.564	234.154	134.706	94.334	229.181	95.192	5800
	5900	35.564	237.711	135.314	95.024	232.738	95.867	5900
	6000	35.564	241.267	135.912	95.700	236.294	96.529	6000

TABLE IX.50. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Xe

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
0	0.000	0.000	0.000	0.000	-6.197	INFINITE	0
200	20.786	4.157	161.386	140.600	-2.040	171.587	200
298.15	20.786	6.197	169.686	148.900	0.000	169.686	298.15
300	20.786	6.236	169.815	149.028	0.038	169.686	300
400	20.786	8.315	175.794	155.008	2.117	170.502	400
500	20.786	10.393	180.433	159.646	4.196	172.041	500
600	20.786	12.472	184.222	163.436	6.274	173.765	600
700	20.786	14.550	187.427	166.640	8.353	175.494	700
800	20.786	16.629	190.202	169.416	10.432	177.163	800
900	20.786	18.708	192.651	171.864	12.510	178.750	900
1000	20.786	20.786	194.841	174.054	14.589	180.252	1000
1100	20.786	22.865	196.822	176.036	16.667	181.670	1100
1200	20.786	24.944	198.630	177.844	18.746	183.009	1200
1300	20.786	27.022	200.294	179.508	20.825	184.275	1300
1400	20.786	29.101	201.835	181.048	22.903	185.475	1400
1500	20.786	31.179	203.269	182.482	24.982	186.614	1500
1600	20.786	33.258	204.610	183.824	27.061	187.697	1600
1700	20.786	35.337	205.870	185.084	29.139	188.730	1700
1800	20.786	37.415	207.059	186.272	31.218	189.715	1800
1900	20.786	39.494	208.182	187.396	33.296	190.658	1900
2000	20.786	41.573	209.249	188.462	35.375	191.561	2000
2100	20.786	43.651	210.263	189.476	37.454	192.428	2100
2200	20.786	45.730	211.230	190.443	39.532	193.260	2200
2300	20.786	47.808	212.154	191.367	41.611	194.062	2300
2400	20.786	49.887	213.038	192.252	43.690	194.834	2400
2500	20.786	51.966	213.887	193.101	45.768	195.580	2500
2600	20.786	54.044	214.702	193.916	47.847	196.300	2600
2700	20.786	56.123	215.487	194.700	49.926	196.996	2700
2800	20.786	58.202	216.243	195.456	52.004	197.670	2800
2900	20.786	60.280	216.972	196.186	54.083	198.323	2900
3000	20.786	62.359	217.677	196.890	56.161	198.956	3000
3100	20.786	64.437	218.358	197.572	58.240	199.571	3100
3200	20.786	66.516	219.018	198.232	60.319	200.169	3200
3300	20.786	68.595	219.658	198.872	62.397	200.750	3300
3400	20.786	70.673	220.278	199.492	64.476	201.315	3400
3500	20.786	72.752	220.881	200.095	66.555	201.865	3500
3600	20.786	74.831	221.466	200.680	68.633	202.402	3600
3700	20.786	76.909	222.036	201.250	70.712	202.925	3700
3800	20.786	78.988	222.590	201.804	72.790	203.435	3800
3900	20.786	81.066	223.130	202.344	74.869	203.933	3900
4000	20.786	83.145	223.657	202.870	76.948	204.420	4000
4100	20.786	85.224	224.170	203.384	79.026	204.895	4100
4200	20.786	87.302	224.671	203.884	81.105	205.360	4200
4300	20.786	89.381	225.160	204.374	83.184	205.815	4300
4400	20.786	91.460	225.638	204.851	85.262	206.260	4400
4500	20.786	93.538	226.105	205.319	87.341	206.696	4500
4600	20.786	95.617	226.562	205.775	89.419	207.123	4600
4700	20.786	97.695	227.009	206.222	91.498	207.541	4700
4800	20.786	99.774	227.446	206.660	93.577	207.951	4800
4900	20.786	101.853	227.875	207.089	95.655	208.353	4900
5000	20.786	103.931	228.295	207.509	97.734	208.748	5000
5100	20.786	106.010	228.706	207.920	99.813	209.135	5100
5200	20.786	108.089	229.110	208.324	101.891	209.516	5200
5300	20.786	110.167	229.506	208.720	103.970	209.889	5300
5400	20.786	112.246	229.895	209.108	106.048	210.256	5400
5500	20.786	114.325	230.276	209.490	108.127	210.617	5500
5600	20.787	116.403	230.651	209.864	110.206	210.971	5600
5700	20.787	118.482	231.018	210.232	112.284	211.319	5700
5800	20.787	120.561	231.380	210.594	114.363	211.662	5800
5900	20.787	122.639	231.735	210.949	116.442	211.999	5900
6000	20.787	124.718	232.085	211.298	118.520	212.331	6000
6200	20.589	128.853	232.763	211.980	122.655	212.979	6200
6400	20.525	132.962	233.415	212.640	126.765	213.608	6400
6600	20.547	137.069	234.047	213.279	130.871	214.218	6600
6800	20.619	141.185	234.661	213.899	134.987	214.810	6800
7000	20.714	145.318	235.260	214.500	139.120	215.386	7000
7200	20.815	149.471	235.845	215.085	143.273	215.946	7200
7400	20.909	153.643	236.417	215.654	147.446	216.492	7400
7600	20.989	157.833	236.975	216.208	151.636	217.023	7600
7800	21.051	162.037	237.521	216.747	155.840	217.542	7800
8000	21.097	166.253	238.055	217.273	160.055	218.048	8000

TABLE IX.50. - Concluded.

T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
8200	21.127	170.475	238.576	217.787	164.278	218.543	8200
8400	21.147	174.703	239.086	218.288	168.505	219.026	8400
8600	21.161	178.933	239.584	218.777	172.736	219.498	8600
8800	21.176	183.167	240.070	219.256	176.970	219.960	8800
9000	21.200	187.405	240.546	219.724	181.207	220.412	9000
9200	21.240	191.648	241.013	220.181	185.451	220.855	9200
9400	21.305	195.902	241.470	220.629	189.705	221.289	9400
9600	21.402	200.172	241.920	221.068	193.975	221.714	9600
9800	21.540	204.466	242.362	221.498	198.268	222.131	9800
10000	21.727	208.792	242.799	221.920	202.594	222.540	10000
10500	22.457	219.821	243.875	222.940	213.623	223.530	10500
11000	23.652	231.326	244.946	223.916	225.129	224.479	11000
11500	25.402	243.565	246.033	224.854	237.368	225.393	11500
12000	27.779	256.833	247.162	225.760	250.636	226.276	12000
12500	30.827	271.456	248.356	226.639	265.259	227.135	12500
13000	34.565	287.776	249.635	227.499	281.578	227.976	13000
13500	38.983	306.135	251.021	228.344	299.937	228.803	13500
14000	44.043	326.866	252.528	229.180	320.668	229.623	14000
14500	49.678	350.274	254.170	230.013	344.077	230.441	14500
15000	55.792	376.624	255.956	230.848	370.427	231.261	15000
15500	62.260	406.125	257.890	231.689	399.928	232.089	15500
16000	68.927	438.917	259.972	232.540	432.720	232.927	16000
16500	75.608	475.055	262.195	233.404	468.857	233.780	16500
17000	82.091	514.493	264.550	234.285	508.295	234.650	17000
17500	88.132	557.072	267.018	235.185	550.875	235.539	17500
18000	93.461	602.506	269.577	236.105	596.309	236.449	18000
18500	97.774	650.364	272.200	237.045	644.167	237.380	18500
19000	100.743	700.056	274.850	238.005	693.859	238.331	19000
19500	102.007	750.823	277.487	238.983	744.625	239.301	19500
20000	101.178	801.715	280.064	239.978	795.517	240.288	20000

TABLE IX.51. - THERMODYNAMIC FUNCTIONS FOR Zn(cr,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.657	INFINITE	0
	200	24.050	3.233	31.790	15.623	-2.424	43.908	200
	298.15	25.390	5.657	41.630	22.656	0.000	41.630	298.15
	300	25.411	5.704	41.787	22.774	0.047	41.630	300
	400	26.224	8.288	49.217	28.496	2.631	42.638	400
	500	27.220	10.956	55.165	33.253	5.299	44.567	500
	600	28.820	13.753	60.260	37.339	8.096	46.767	600
cr	692.73	30.975	16.519	64.543	40.697	10.862	48.863	692.73
ℓ	692.73	31.400	23.819	75.081	40.697	18.162	48.863	692.73
	700	31.400	24.047	75.409	41.056	18.390	49.137	700
	800	31.400	27.187	79.602	45.618	21.530	52.689	800
	900	31.400	30.327	83.300	49.603	24.670	55.889	900
	1000	31.400	33.467	86.609	53.141	27.810	58.798	1000
	1100	31.400	36.607	89.601	56.322	30.950	61.465	1100
	1200	31.400	39.747	92.334	59.211	34.090	63.925	1200
	1300	31.400	42.887	94.847	61.857	37.230	66.208	1300
	1400	31.400	46.027	97.174	64.297	40.370	68.338	1400
	1500	31.400	49.167	99.340	66.562	43.510	70.333	1500
	1600	31.400	52.307	101.367	68.675	46.650	72.210	1600
	1700	31.400	55.447	103.270	70.654	49.790	73.982	1700
	1800	31.400	58.587	105.065	72.517	52.930	75.659	1800
	1900	31.400	61.727	106.763	74.275	56.070	77.252	1900
	2000	31.400	64.867	108.373	75.940	59.210	78.768	2000
	2100	31.400	68.007	109.905	77.521	62.350	80.215	2100
	2200	31.400	71.147	111.366	79.027	65.490	81.598	2200
	2300	31.400	74.287	112.762	80.463	68.630	82.923	2300
	2400	31.400	77.427	114.098	81.837	71.770	84.194	2400
	2500	31.400	80.567	115.380	83.153	74.910	85.416	2500
	2600	31.400	83.707	116.612	84.417	78.050	86.592	2600
	2700	31.400	86.847	117.797	85.631	81.190	87.726	2700
	2800	31.400	89.987	118.939	86.800	84.330	88.821	2800
	2900	31.400	93.127	120.041	87.928	87.470	89.878	2900
	3000	31.400	96.267	121.105	89.016	90.610	90.902	3000
	3100	31.400	99.407	122.135	90.068	93.750	91.893	3100
	3200	31.400	102.547	123.132	91.086	96.890	92.853	3200
	3300	31.400	105.687	124.098	92.071	100.030	93.786	3300
	3400	31.400	108.827	125.035	93.027	103.170	94.691	3400
	3500	31.400	111.967	125.945	93.955	106.310	95.571	3500
	3600	31.400	115.107	126.830	94.856	109.450	96.427	3600
	3700	31.400	118.247	127.690	95.732	112.590	97.260	3700
	3800	31.400	121.387	128.528	96.584	115.730	98.072	3800
	3900	31.400	124.527	129.343	97.413	118.870	98.864	3900
	4000	31.400	127.667	130.138	98.221	122.010	99.636	4000
	4100	31.400	130.807	130.914	99.009	125.150	100.389	4100
	4200	31.400	133.947	131.670	99.778	128.290	101.125	4200
	4300	31.400	137.087	132.409	100.528	131.430	101.844	4300
	4400	31.400	140.227	133.131	101.261	134.570	102.547	4400
	4500	31.400	143.367	133.837	101.977	137.710	103.234	4500
	4600	31.400	146.507	134.527	102.677	140.850	103.907	4600
	4700	31.400	149.647	135.202	103.362	143.990	104.566	4700
	4800	31.400	152.787	135.863	104.033	147.130	105.211	4800
	4900	31.400	155.927	136.511	104.689	150.270	105.843	4900
	5000	31.400	159.067	137.145	105.332	153.410	106.463	5000
	5100	31.400	162.207	137.767	105.961	156.550	107.071	5100
	5200	31.400	165.347	138.377	106.579	159.690	107.667	5200
	5300	31.400	168.487	138.975	107.185	162.830	108.252	5300
	5400	31.400	171.627	139.562	107.779	165.970	108.826	5400
	5500	31.400	174.767	140.138	108.362	169.110	109.390	5500
	5600	31.400	177.907	140.704	108.934	172.250	109.945	5600
	5700	31.400	181.047	141.259	109.497	175.390	110.489	5700
	5800	31.400	184.187	141.805	110.049	178.530	111.024	5800
	5900	31.400	187.327	142.342	110.592	181.670	111.551	5900
	6000	31.400	190.467	142.870	111.125	184.810	112.068	6000

TABLE IX.52. - THERMODYNAMIC FUNCTIONS FROM COEFFICIENTS FOR Zr(α,β,ℓ)

	T K	C_p^o J/mol-K	$H^o(T)-H^o(0)$ kJ/mol	$S^o(T)$ J/mol-K	$-\{G^o(T)-H^o(0)\}/T$ J/mol-K	$H^o(T)$ kJ/mol	$-G^o(T)/T$ J/mol-K	T K
	0	0.000	0.000	0.000	0.000	-5.497	INFINITE	0
	200	23.871	3.079	29.048	13.655	-2.418	41.140	200
	298.15	25.202	5.497	38.869	20.432	0.000	38.869	298.15
	300	25.218	5.544	39.025	20.546	0.047	38.869	300
	400	25.937	8.103	46.384	26.125	2.606	39.868	400
	500	26.572	10.729	52.239	30.782	5.232	41.776	500
	600	27.262	13.420	57.144	34.778	7.923	43.939	600
	700	28.058	16.185	61.404	38.283	10.688	46.136	700
	800	28.973	19.035	65.209	41.415	13.538	48.287	800
	900	30.002	21.983	68.680	44.255	16.486	50.362	900
	1000	31.125	25.039	71.899	46.860	19.542	52.357	1000
	1100	32.306	28.210	74.920	49.275	22.713	54.272	1100
α	1135	32.725	29.348	75.939	50.081	23.851	54.925	1135
β	1135	28.329	33.365	79.478	50.081	27.868	54.925	1135
	1200	28.511	35.212	81.060	51.717	29.715	56.298	1200
	1300	28.879	38.081	83.356	54.063	32.584	58.292	1300
	1400	29.353	40.991	85.513	56.234	35.494	60.160	1400
	1500	29.934	43.955	87.558	58.254	38.458	61.919	1500
	1600	30.621	46.982	89.511	60.147	41.485	63.583	1600
	1700	31.414	50.083	91.390	61.930	44.586	65.164	1700
	1800	32.314	53.268	93.211	63.618	47.771	66.671	1800
	1900	33.320	56.549	94.985	65.222	51.052	68.115	1900
	2000	34.433	59.936	96.722	66.754	54.439	69.502	2000
	2100	35.652	63.439	98.431	68.221	57.942	70.839	2100
β	2125	35.973	64.334	98.854	68.579	58.837	71.166	2125
ℓ	2125	41.840	85.254	108.699	68.579	79.757	71.166	2125
	2200	41.840	88.392	110.150	69.972	82.895	72.471	2200
	2300	41.840	92.576	112.010	71.760	87.079	74.150	2300
	2400	41.840	96.760	113.791	73.474	91.263	75.764	2400
	2500	41.840	100.944	115.499	75.121	95.447	77.320	2500
	2600	41.840	105.128	117.140	76.706	99.631	78.820	2600
	2700	41.840	109.312	118.719	78.233	103.815	80.269	2700
	2800	41.840	113.496	120.241	79.706	107.999	81.669	2800
	2900	41.840	117.680	121.709	81.129	112.183	83.025	2900
	3000	41.840	121.864	123.127	82.506	116.367	84.338	3000
	3100	41.840	126.048	124.499	83.838	120.551	85.612	3100
	3200	41.840	130.232	125.828	85.130	124.735	86.848	3200
	3300	41.840	134.416	127.115	86.383	128.919	88.049	3300
	3400	41.840	138.600	128.364	87.599	133.103	89.216	3400
	3500	41.840	142.784	129.577	88.781	137.287	90.352	3500
	3600	41.840	146.968	130.756	89.931	141.471	91.458	3600
	3700	41.840	151.152	131.902	91.050	145.655	92.536	3700
	3800	41.840	155.336	133.018	92.140	149.839	93.586	3800
	3900	41.840	159.520	134.105	93.202	154.023	94.611	3900
	4000	41.840	163.704	135.164	94.238	158.207	95.612	4000
	4100	41.840	167.888	136.197	95.249	162.391	96.589	4100
	4200	41.840	172.072	137.205	96.236	166.575	97.544	4200
	4300	41.840	176.256	138.190	97.200	170.759	98.478	4300
	4400	41.840	180.440	139.152	98.142	174.943	99.392	4400
	4500	41.840	184.624	140.092	99.064	179.127	100.286	4500
	4600	41.840	188.808	141.011	99.966	183.311	101.161	4600
	4700	41.840	192.992	141.911	100.849	187.495	102.019	4700
	4800	41.840	197.176	142.792	101.714	191.679	102.859	4800
	4900	41.840	201.360	143.655	102.561	195.863	103.683	4900
	5000	41.840	205.544	144.500	103.391	200.047	104.491	5000
	5100	41.840	209.728	145.329	104.205	204.231	105.283	5100
	5200	41.840	213.912	146.141	105.004	208.415	106.061	5200
	5300	41.840	218.096	146.938	105.788	212.599	106.825	5300
	5400	41.840	222.280	147.720	106.557	216.783	107.575	5400
	5500	41.840	226.464	148.488	107.313	220.967	108.312	5500
	5600	41.840	230.648	149.242	108.055	225.151	109.036	5600
	5700	41.840	234.832	149.982	108.784	229.335	109.748	5700
	5800	41.840	239.016	150.710	109.500	233.519	110.448	5800
	5900	41.840	243.200	151.425	110.205	237.703	111.137	5900
	6000	41.840	247.384	152.128	110.898	241.887	111.814	6000

TABLE X. - LEAST-SQUARES FITTING DIFFERENCES WITH THE 9-CONSTANT FUNCTIONAL FORM

Ag(cr) Silver Cubic Crystal. CODATA,1989, p228. T range = 200.000 to 1235.080 K

MAX REL ERR CP/R	=	0.000759	TEMP =	400.	AVER REL ERR CP/R	=	0.000248	REL LST SQ ERR CP/R	=	0.000351
MAX REL ERR HH/RT	=	0.003021	TEMP =	200.	AVER REL ERR HH/RT	=	0.000294	REL LST SQ ERR HH/RT	=	0.000848
MAX REL ERR S/R	=	0.001515	TEMP =	200.	AVER REL ERR S/R	=	0.000173	REL LST SQ ERR S/R	=	0.000427
MAX REL ERR GH/RT	=	0.000100	TEMP =	500.	AVER REL ERR GH/RT	=	0.000058	REL LST SQ ERR GH/RT	=	0.000067
MAX ERR CP/R	=	0.002353	TEMP =	400.	AVER ERR CP/R	=	0.000793	LST SQ ERR CP/R	=	0.001101
MAX ERR HH/RT	=	0.006010	TEMP =	200.	AVER ERR HH/RT	=	0.000623	LST SQ ERR HH/RT	=	0.001700
MAX ERR S/R	=	0.005952	TEMP =	200.	AVER ERR S/R	=	0.000889	LST SQ ERR S/R	=	0.001732
MAX ERR GH/RT	=	0.000506	TEMP =	800.	AVER ERR GH/RT	=	0.000304	LST SQ ERR GH/RT	=	0.000357

Al(cr) Aluminum Cubic Crystal. CODATA 1989, p217. T range = 200.000 to 933.610 K

MAX REL ERR CP/R	=	0.000047	TEMP =	400.	AVER REL ERR CP/R	=	0.000027	REL LST SQ ERR CP/R	=	0.000031
MAX REL ERR HH/RT	=	0.000800	TEMP =	200.	AVER REL ERR HH/RT	=	0.000098	REL LST SQ ERR HH/RT	=	0.000254
MAX REL ERR S/R	=	0.000637	TEMP =	200.	AVER REL ERR S/R	=	0.000072	REL LST SQ ERR S/R	=	0.000202
MAX REL ERR GH/RT	=	0.002762	TEMP =	200.	AVER REL ERR GH/RT	=	0.000297	REL LST SQ ERR GH/RT	=	0.000874
MAX ERR CP/R	=	0.000163	TEMP =	900.	AVER ERR CP/R	=	0.000092	LST SQ ERR CP/R	=	0.000107
MAX ERR HH/RT	=	0.001098	TEMP =	200.	AVER ERR HH/RT	=	0.000153	LST SQ ERR HH/RT	=	0.000351
MAX ERR S/R	=	0.001467	TEMP =	200.	AVER ERR S/R	=	0.000186	LST SQ ERR S/R	=	0.000467
MAX ERR GH/RT	=	0.002565	TEMP =	200.	AVER ERR GH/RT	=	0.000311	LST SQ ERR GH/RT	=	0.000815

Ar Argon. NSRDS-NBS 35, vl, 1971. Temperature cutoff. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.013468	TEMP =	18000.	AVER REL ERR CP/R	=	0.003116	REL LST SQ ERR CP/R	=	0.004363
MAX REL ERR HH/RT	=	0.018988	TEMP =	20000.	AVER REL ERR HH/RT	=	0.001605	REL LST SQ ERR HH/RT	=	0.003960
MAX REL ERR S/R	=	0.002094	TEMP =	20000.	AVER REL ERR S/R	=	0.000174	REL LST SQ ERR S/R	=	0.000430
MAX REL ERR GH/RT	=	0.000335	TEMP =	20000.	AVER REL ERR GH/RT	=	0.000029	REL LST SQ ERR GH/RT	=	0.000066
MAX ERR CP/R	=	0.051427	TEMP =	18000.	AVER ERR CP/R	=	0.009783	LST SQ ERR CP/R	=	0.015202
MAX ERR HH/RT	=	0.052737	TEMP =	20000.	AVER ERR HH/RT	=	0.004316	LST SQ ERR HH/RT	=	0.010903
MAX ERR S/R	=	0.061673	TEMP =	20000.	AVER ERR S/R	=	0.005043	LST SQ ERR S/R	=	0.012633
MAX ERR GH/RT	=	0.008936	TEMP =	20000.	AVER ERR GH/RT	=	0.000765	LST SQ ERR GH/RT	=	0.001766

B(b) Boron beta. JANAF Jun.1983, p174. 100.000 T range = 200.000 to 600.000 K

MAX REL ERR CP/R	=	0.002022	TEMP =	330.	AVER REL ERR CP/R	=	0.000667	REL LST SQ ERR CP/R	=	0.000924
MAX REL ERR HH/RT	=	0.001148	TEMP =	230.	AVER REL ERR HH/RT	=	0.000301	REL LST SQ ERR HH/RT	=	0.000438
MAX REL ERR S/R	=	0.000366	TEMP =	200.	AVER REL ERR S/R	=	0.000127	REL LST SQ ERR S/R	=	0.000180
MAX REL ERR GH/RT	=	0.001705	TEMP =	230.	AVER REL ERR GH/RT	=	0.000474	REL LST SQ ERR GH/RT	=	0.000688
MAX ERR CP/R	=	0.003175	TEMP =	400.	AVER ERR CP/R	=	0.001001	LST SQ ERR CP/R	=	0.001457
MAX ERR HH/RT	=	0.000396	TEMP =	350.	AVER ERR HH/RT	=	0.000127	LST SQ ERR HH/RT	=	0.000166
MAX ERR S/R	=	0.000280	TEMP =	350.	AVER ERR S/R	=	0.000085	LST SQ ERR S/R	=	0.000112
MAX ERR GH/RT	=	0.000222	TEMP =	400.	AVER ERR GH/RT	=	0.000101	LST SQ ERR GH/RT	=	0.000124

B(b) Boron beta. JANAF Jun.1983, p174. 100.000 T range = 600.000 to 2350.000 K

MAX REL ERR CP/R	=	0.000113	TEMP =	600.	AVER REL ERR CP/R	=	0.000014	REL LST SQ ERR CP/R	=	0.000025
MAX REL ERR HH/RT	=	0.000100	TEMP =	600.	AVER REL ERR HH/RT	=	0.000017	REL LST SQ ERR HH/RT	=	0.000028
MAX REL ERR S/R	=	0.000027	TEMP =	600.	AVER REL ERR S/R	=	0.000007	REL LST SQ ERR S/R	=	0.000010
MAX REL ERR GH/RT	=	0.000088	TEMP =	600.	AVER REL ERR GH/RT	=	0.000021	REL LST SQ ERR GH/RT	=	0.000032
MAX ERR CP/R	=	0.000283	TEMP =	600.	AVER ERR CP/R	=	0.000041	LST SQ ERR CP/R	=	0.000069
MAX ERR HH/RT	=	0.000127	TEMP =	600.	AVER ERR HH/RT	=	0.000031	LST SQ ERR HH/RT	=	0.000044
MAX ERR S/R	=	0.000065	TEMP =	1200.	AVER ERR S/R	=	0.000029	LST SQ ERR S/R	=	0.000035
MAX ERR GH/RT	=	0.000119	TEMP =	1000.	AVER ERR GH/RT	=	0.000035	LST SQ ERR GH/RT	=	0.000045

Br2(cr) Bromine Rhombic. TPIS 1989 vl, pt 2, p314. JANAF, 6/82. T range = 200.000 to 265.900 K

MAX REL ERR CP/R	=	0.000062	TEMP =	250.	AVER REL ERR CP/R	=	0.000022	REL LST SQ ERR CP/R	=	0.000030
MAX REL ERR HH/RT	=	0.000872	TEMP =	200.	AVER REL ERR HH/RT	=	0.000615	REL LST SQ ERR HH/RT	=	0.000662
MAX REL ERR S/R	=	0.000259	TEMP =	200.	AVER REL ERR S/R	=	0.000208	REL LST SQ ERR S/R	=	0.000223
MAX REL ERR GH/RT	=	0.001148	TEMP =	200.	AVER REL ERR GH/RT	=	0.000826	REL LST SQ ERR GH/RT	=	0.000889
MAX ERR CP/R	=	0.000444	TEMP =	250.	AVER ERR CP/R	=	0.000151	LST SQ ERR CP/R	=	0.000211
MAX ERR HH/RT	=	0.004036	TEMP =	200.	AVER ERR HH/RT	=	0.002993	LST SQ ERR HH/RT	=	0.003214
MAX ERR S/R	=	0.002920	TEMP =	260.	AVER ERR S/R	=	0.002374	LST SQ ERR S/R	=	0.002540
MAX ERR GH/RT	=	0.006763	TEMP =	200.	AVER ERR GH/RT	=	0.005368	LST SQ ERR GH/RT	=	0.005744

Br2(l) Bromine Liquid. TPIS 1989 vl, pt 2, p314. JANAF, 6/82. T range = 265.900 to 332.503 K

MAX REL ERR CP/R	=	0.000088	TEMP =	300.	AVER REL ERR CP/R	=	0.000019	REL LST SQ ERR CP/R	=	0.000035
MAX REL ERR HH/RT	=	0.000397	TEMP =	270.	AVER REL ERR HH/RT	=	0.000163	REL LST SQ ERR HH/RT	=	0.000239
MAX REL ERR S/R	=	0.000111	TEMP =	290.	AVER REL ERR S/R	=	0.000050	REL LST SQ ERR S/R	=	0.000069
MAX REL ERR GH/RT	=	0.000765	TEMP =	270.	AVER REL ERR GH/RT	=	0.000310	REL LST SQ ERR GH/RT	=	0.000462
MAX ERR CP/R	=	0.000797	TEMP =	300.	AVER ERR CP/R	=	0.000177	LST SQ ERR CP/R	=	0.000316
MAX ERR HH/RT	=	0.003953	TEMP =	270.	AVER ERR HH/RT	=	0.001614	LST SQ ERR HH/RT	=	0.002374
MAX ERR S/R	=	0.002012	TEMP =	290.	AVER ERR S/R	=	0.000894	LST SQ ERR S/R	=	0.001232
MAX ERR GH/RT	=	0.005689	TEMP =	270.	AVER ERR GH/RT	=	0.002422	LST SQ ERR GH/RT	=	0.003583

TABLE X. - Continued.

C(gr) Graphite. TRC Tables VC,UC,TC-1000-1002,Apr 30,1983. T range = 200.000 to 600.000 K

MAX REL ERR CP/R	=	0.001390	TEMP =	220.	AVER REL ERR CP/R	=	0.000580	REL LST SQ ERR CP/R	=	0.000753
MAX REL ERR HH/RT	=	0.000621	TEMP =	230.	AVER REL ERR HH/RT	=	0.000249	REL LST SQ ERR HH/RT	=	0.000310
MAX REL ERR S/R	=	0.000353	TEMP =	380.	AVER REL ERR S/R	=	0.000185	REL LST SQ ERR S/R	=	0.000210
MAX REL ERR GH/RT	=	0.000492	TEMP =	230.	AVER REL ERR GH/RT	=	0.000273	REL LST SQ ERR GH/RT	=	0.000302
MAX ERR CP/R	=	0.001202	TEMP =	320.	AVER ERR CP/R	=	0.000542	LST SQ ERR CP/R	=	0.000664
MAX ERR HH/RT	=	0.000183	TEMP =	380.	AVER ERR HH/RT	=	0.000105	LST SQ ERR HH/RT	=	0.000118
MAX ERR S/R	=	0.000361	TEMP =	420.	AVER ERR S/R	=	0.000165	LST SQ ERR S/R	=	0.000201
MAX ERR GH/RT	=	0.000234	TEMP =	600.	AVER ERR GH/RT	=	0.000098	LST SQ ERR GH/RT	=	0.000120

C(gr) Graphite. TRC Tables VC,UC,TC-1000-1002,Apr 30,1983. T range = 600.000 to 2000.000 K

MAX REL ERR CP/R	=	0.000070	TEMP =	800.	AVER REL ERR CP/R	=	0.000028	REL LST SQ ERR CP/R	=	0.000036
MAX REL ERR HH/RT	=	0.000076	TEMP =	600.	AVER REL ERR HH/RT	=	0.000025	REL LST SQ ERR HH/RT	=	0.000033
MAX REL ERR S/R	=	0.000178	TEMP =	600.	AVER REL ERR S/R	=	0.000053	REL LST SQ ERR S/R	=	0.000072
MAX REL ERR GH/RT	=	0.000314	TEMP =	600.	AVER REL ERR GH/RT	=	0.000108	REL LST SQ ERR GH/RT	=	0.000138
MAX ERR CP/R	=	0.000167	TEMP =	800.	AVER ERR CP/R	=	0.000069	LST SQ ERR CP/R	=	0.000084
MAX ERR HH/RT	=	0.000078	TEMP =	1400.	AVER ERR HH/RT	=	0.000036	LST SQ ERR HH/RT	=	0.000044
MAX ERR S/R	=	0.000310	TEMP =	600.	AVER ERR S/R	=	0.000135	LST SQ ERR S/R	=	0.000160
MAX ERR GH/RT	=	0.000234	TEMP =	600.	AVER ERR GH/RT	=	0.000137	LST SQ ERR GH/RT	=	0.000155

C(gr) Graphite. TRC Tables VC,UC,TC-1000-1002,Apr 30,1983. T range = 2000.000 to 5000.000 K

MAX REL ERR CP/R	=	0.000034	TEMP =	2300.	AVER REL ERR CP/R	=	0.000010	REL LST SQ ERR CP/R	=	0.000013
MAX REL ERR HH/RT	=	0.000054	TEMP =	4500.	AVER REL ERR HH/RT	=	0.000016	REL LST SQ ERR HH/RT	=	0.000022
MAX REL ERR S/R	=	0.000025	TEMP =	2000.	AVER REL ERR S/R	=	0.000009	REL LST SQ ERR S/R	=	0.000011
MAX REL ERR GH/RT	=	0.000054	TEMP =	2000.	AVER REL ERR GH/RT	=	0.000026	REL LST SQ ERR GH/RT	=	0.000029
MAX ERR CP/R	=	0.000106	TEMP =	2300.	AVER ERR CP/R	=	0.000033	LST SQ ERR CP/R	=	0.000041
MAX ERR HH/RT	=	0.000149	TEMP =	4500.	AVER ERR HH/RT	=	0.000042	LST SQ ERR HH/RT	=	0.000061
MAX ERR S/R	=	0.000123	TEMP =	2000.	AVER ERR S/R	=	0.000061	LST SQ ERR S/R	=	0.000069
MAX ERR GH/RT	=	0.000220	TEMP =	4600.	AVER ERR GH/RT	=	0.000102	LST SQ ERR GH/RT	=	0.000117

Ca(a) Calcium Alpha Crystal. Alcock, JPCRD 1992. T range = 200.000 to 298.150 K

MAX REL ERR CP/R	=	0.000021	TEMP =	280.	AVER REL ERR CP/R	=	0.000010	REL LST SQ ERR CP/R	=	0.000012
MAX REL ERR HH/RT	=	0.000053	TEMP =	200.	AVER REL ERR HH/RT	=	0.000033	REL LST SQ ERR HH/RT	=	0.000037
MAX REL ERR S/R	=	0.000019	TEMP =	200.	AVER REL ERR S/R	=	0.000013	REL LST SQ ERR S/R	=	0.000014
MAX REL ERR GH/RT	=	0.000017	TEMP =	200.	AVER REL ERR GH/RT	=	0.000007	REL LST SQ ERR GH/RT	=	0.000009
MAX ERR CP/R	=	0.000064	TEMP =	280.	AVER ERR CP/R	=	0.000029	LST SQ ERR CP/R	=	0.000036
MAX ERR HH/RT	=	0.000106	TEMP =	200.	AVER ERR HH/RT	=	0.000071	LST SQ ERR HH/RT	=	0.000079
MAX ERR S/R	=	0.000078	TEMP =	280.	AVER ERR S/R	=	0.000057	LST SQ ERR S/R	=	0.000063
MAX ERR GH/RT	=	0.000032	TEMP =	200.	AVER ERR GH/RT	=	0.000014	LST SQ ERR GH/RT	=	0.000018

Ca(a) Calcium Alpha Crystal. Alcock, JPCRD 1992. T range = 298.150 to 716.000 K

MAX REL ERR CP/R	=	0.000983	TEMP =	300.	AVER REL ERR CP/R	=	0.000151	REL LST SQ ERR CP/R	=	0.000309
MAX REL ERR HH/RT	=	0.000015	TEMP =	450.	AVER REL ERR HH/RT	=	0.000004	REL LST SQ ERR HH/RT	=	0.000006
MAX REL ERR S/R	=	0.000007	TEMP =	450.	AVER REL ERR S/R	=	0.000002	REL LST SQ ERR S/R	=	0.000003
MAX REL ERR GH/RT	=	0.000003	TEMP =	500.	AVER REL ERR GH/RT	=	0.000002	REL LST SQ ERR GH/RT	=	0.000002
MAX ERR CP/R	=	0.003050	TEMP =	300.	AVER ERR CP/R	=	0.000491	LST SQ ERR CP/R	=	0.000965
MAX ERR HH/RT	=	0.000038	TEMP =	450.	AVER ERR HH/RT	=	0.000011	LST SQ ERR HH/RT	=	0.000015
MAX ERR S/R	=	0.000047	TEMP =	450.	AVER ERR S/R	=	0.000016	LST SQ ERR S/R	=	0.000021
MAX ERR GH/RT	=	0.000013	TEMP =	700.	AVER ERR GH/RT	=	0.000009	LST SQ ERR GH/RT	=	0.000010

Cd(cr) Cadmium Crystal. CODATA 1989, p223. T range = 100.000 to 594.258 K

MAX REL ERR CP/R	=	0.000443	TEMP =	200.	AVER REL ERR CP/R	=	0.000107	REL LST SQ ERR CP/R	=	0.000184
MAX REL ERR HH/RT	=	0.001832	TEMP =	200.	AVER REL ERR HH/RT	=	0.000430	REL LST SQ ERR HH/RT	=	0.000774
MAX REL ERR S/R	=	0.000776	TEMP =	100.	AVER REL ERR S/R	=	0.000219	REL LST SQ ERR S/R	=	0.000384
MAX REL ERR GH/RT	=	0.002744	TEMP =	100.	AVER REL ERR GH/RT	=	0.000443	REL LST SQ ERR GH/RT	=	0.001044
MAX ERR CP/R	=	0.001328	TEMP =	200.	AVER ERR CP/R	=	0.000330	LST SQ ERR CP/R	=	0.000560
MAX ERR HH/RT	=	0.004126	TEMP =	200.	AVER ERR HH/RT	=	0.000910	LST SQ ERR HH/RT	=	0.001665
MAX ERR S/R	=	0.003263	TEMP =	200.	AVER ERR S/R	=	0.000923	LST SQ ERR S/R	=	0.001532
MAX ERR GH/RT	=	0.003829	TEMP =	100.	AVER ERR GH/RT	=	0.000698	LST SQ ERR GH/RT	=	0.001484

Cl2 Chlorine gas. TPIS 1989, vl, pt2, p88. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000015	TEMP =	600.	AVER REL ERR CP/R	=	0.000005	REL LST SQ ERR CP/R	=	0.000007
MAX REL ERR HH/RT	=	0.000023	TEMP =	200.	AVER REL ERR HH/RT	=	0.000013	REL LST SQ ERR HH/RT	=	0.000015
MAX REL ERR S/R	=	0.000002	TEMP =	500.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000002
MAX REL ERR GH/RT	=	0.000006	TEMP =	200.	AVER REL ERR GH/RT	=	0.000003	REL LST SQ ERR GH/RT	=	0.000003
MAX ERR CP/R	=	0.000067	TEMP =	600.	AVER ERR CP/R	=	0.000023	LST SQ ERR CP/R	=	0.000030
MAX ERR HH/RT	=	0.000092	TEMP =	900.	AVER ERR HH/RT	=	0.000050	LST SQ ERR HH/RT	=	0.000058
MAX ERR S/R	=	0.000070	TEMP =	600.	AVER ERR S/R	=	0.000037	LST SQ ERR S/R	=	0.000044
MAX ERR GH/RT	=	0.000152	TEMP =	1000.	AVER ERR GH/RT	=	0.000068	LST SQ ERR GH/RT	=	0.000086

Cl2 Chlorine gas. TPIS 1989, vl, pt2, p88. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.001682	TEMP =	1100.	AVER REL ERR CP/R	=	0.000648	REL LST SQ ERR CP/R	=	0.000755
MAX REL ERR HH/RT	=	0.000211	TEMP =	1200.	AVER REL ERR HH/RT	=	0.000062	REL LST SQ ERR HH/RT	=	0.000079
MAX REL ERR S/R	=	0.000035	TEMP =	1300.	AVER REL ERR S/R	=	0.000009	REL LST SQ ERR S/R	=	0.000012
MAX REL ERR GH/RT	=	0.000012	TEMP =	1500.	AVER REL ERR GH/RT	=	0.000008	REL LST SQ ERR GH/RT	=	0.000008
MAX ERR CP/R	=	0.007601	TEMP =	1100.	AVER ERR CP/R	=	0.003186	LST SQ ERR CP/R	=	0.003664
MAX ERR HH/RT	=	0.000895	TEMP =	1200.	AVER ERR HH/RT	=	0.000276	LST SQ ERR HH/RT	=	0.000347
MAX ERR S/R	=	0.001164	TEMP =	1300.	AVER ERR S/R	=	0.000332	LST SQ ERR S/R	=	0.000434
MAX ERR GH/RT	=	0.000383	TEMP =	2900.	AVER ERR GH/RT	=	0.000247	LST SQ ERR GH/RT	=	0.000254

TABLE X. - Continued.

Co(a) Cobalt Alpha Crystal. JANAF, SEPT. 1967. T range = 200.000 to 500.000 K

MAX REL ERR CP/R	=	0.000245	TEMP =	350.	AVER REL ERR CP/R	=	0.000078	REL LST SQ ERR CP/R	=	0.000116
MAX REL ERR HH/RT	=	0.002518	TEMP =	250.	AVER REL ERR HH/RT	=	0.000338	REL LST SQ ERR HH/RT	=	0.000891
MAX REL ERR S/R	=	0.001281	TEMP =	250.	AVER REL ERR S/R	=	0.000237	REL LST SQ ERR S/R	=	0.000482
MAX REL ERR GH/RT	=	0.001115	TEMP =	200.	AVER REL ERR GH/RT	=	0.000190	REL LST SQ ERR GH/RT	=	0.000407
MAX ERR CP/R	=	0.000758	TEMP =	350.	AVER ERR CP/R	=	0.000241	LST SQ ERR CP/R	=	0.000363
MAX ERR HH/RT	=	0.004345	TEMP =	250.	AVER ERR HH/RT	=	0.000594	LST SQ ERR HH/RT	=	0.001538
MAX ERR S/R	=	0.003967	TEMP =	250.	AVER ERR S/R	=	0.000727	LST SQ ERR S/R	=	0.001464
MAX ERR GH/RT	=	0.001131	TEMP =	200.	AVER ERR GH/RT	=	0.000228	LST SQ ERR GH/RT	=	0.000426

Co(a) Cobalt Alpha Crystal. JANAF, SEPT. 1967. T range = 500.000 to 700.100 K

MAX REL ERR CP/R	=	0.000013	TEMP =	550.	AVER REL ERR CP/R	=	0.000010	REL LST SQ ERR CP/R	=	0.000011
MAX REL ERR HH/RT	=	0.000039	TEMP =	700.	AVER REL ERR HH/RT	=	0.000025	REL LST SQ ERR HH/RT	=	0.000027
MAX REL ERR S/R	=	0.000035	TEMP =	600.	AVER REL ERR S/R	=	0.000020	REL LST SQ ERR S/R	=	0.000023
MAX REL ERR GH/RT	=	0.000056	TEMP =	600.	AVER REL ERR GH/RT	=	0.000039	REL LST SQ ERR GH/RT	=	0.000041
MAX ERR CP/R	=	0.000045	TEMP =	550.	AVER ERR CP/R	=	0.000036	LST SQ ERR CP/R	=	0.000038
MAX ERR HH/RT	=	0.000106	TEMP =	700.	AVER ERR HH/RT	=	0.000065	LST SQ ERR HH/RT	=	0.000073
MAX ERR S/R	=	0.000205	TEMP =	600.	AVER ERR S/R	=	0.000117	LST SQ ERR S/R	=	0.000129
MAX ERR GH/RT	=	0.000182	TEMP =	600.	AVER ERR GH/RT	=	0.000130	LST SQ ERR GH/RT	=	0.000138

Co(b) Cobalt Beta below Lambda transition. JANAF,9/1967. T range = 700.100 to 800.000 K

MAX REL ERR CP/R	=	0.000009	TEMP =	800.	AVER REL ERR CP/R	=	0.000004	REL LST SQ ERR CP/R	=	0.000006
MAX REL ERR HH/RT	=	0.000097	TEMP =	800.	AVER REL ERR HH/RT	=	0.000067	REL LST SQ ERR HH/RT	=	0.000073
MAX REL ERR S/R	=	0.000037	TEMP =	800.	AVER REL ERR S/R	=	0.000024	REL LST SQ ERR S/R	=	0.000027
MAX REL ERR GH/RT	=	0.000046	TEMP =	700.	AVER REL ERR GH/RT	=	0.000026	REL LST SQ ERR GH/RT	=	0.000033
MAX ERR CP/R	=	0.000035	TEMP =	800.	AVER ERR CP/R	=	0.000018	LST SQ ERR CP/R	=	0.000025
MAX ERR HH/RT	=	0.000286	TEMP =	800.	AVER ERR HH/RT	=	0.000196	LST SQ ERR HH/RT	=	0.000216
MAX ERR S/R	=	0.000263	TEMP =	800.	AVER ERR S/R	=	0.000163	LST SQ ERR S/R	=	0.000191
MAX ERR GH/RT	=	0.000170	TEMP =	700.	AVER ERR GH/RT	=	0.000097	LST SQ ERR GH/RT	=	0.000121

Co(b) Cobalt Beta below Lambda transition. JANAF,9/1967. T range = 800.000 to 1394.000 K

MAX REL ERR CP/R	=	0.004581	TEMP =	1200.	AVER REL ERR CP/R	=	0.001834	REL LST SQ ERR CP/R	=	0.002358
MAX REL ERR HH/RT	=	0.000312	TEMP =	1200.	AVER REL ERR HH/RT	=	0.000148	REL LST SQ ERR HH/RT	=	0.000177
MAX REL ERR S/R	=	0.000135	TEMP =	1200.	AVER REL ERR S/R	=	0.000066	REL LST SQ ERR S/R	=	0.000079
MAX REL ERR GH/RT	=	0.000026	TEMP =	1300.	AVER REL ERR GH/RT	=	0.000016	REL LST SQ ERR GH/RT	=	0.000018
MAX ERR CP/R	=	0.023813	TEMP =	1200.	AVER ERR CP/R	=	0.009620	LST SQ ERR CP/R	=	0.012563
MAX ERR HH/RT	=	0.001079	TEMP =	1200.	AVER ERR HH/RT	=	0.000497	LST SQ ERR HH/RT	=	0.000605
MAX ERR S/R	=	0.001189	TEMP =	1200.	AVER ERR S/R	=	0.000558	LST SQ ERR S/R	=	0.000683
MAX ERR GH/RT	=	0.000148	TEMP =	1300.	AVER ERR GH/RT	=	0.000084	LST SQ ERR GH/RT	=	0.000098

Co(b) Cobalt Beta above Lambda transition. JANAF,9/1967. T range = 1394.000 to 1400.000 K

MAX REL ERR CP/R	=	0.000825	TEMP =	1394.	AVER REL ERR CP/R	=	0.000413	REL LST SQ ERR CP/R	=	0.000584
MAX REL ERR HH/RT	=	0.000029	TEMP =	1400.	AVER REL ERR HH/RT	=	0.000020	REL LST SQ ERR HH/RT	=	0.000022
MAX REL ERR S/R	=	0.000036	TEMP =	1400.	AVER REL ERR S/R	=	0.000022	REL LST SQ ERR S/R	=	0.000026
MAX REL ERR GH/RT	=	0.000040	TEMP =	1400.	AVER REL ERR GH/RT	=	0.000031	REL LST SQ ERR GH/RT	=	0.000032
MAX ERR CP/R	=	0.005458	TEMP =	1394.	AVER ERR CP/R	=	0.002730	LST SQ ERR CP/R	=	0.003860
MAX ERR HH/RT	=	0.000110	TEMP =	1400.	AVER ERR HH/RT	=	0.000075	LST SQ ERR HH/RT	=	0.000083
MAX ERR S/R	=	0.000346	TEMP =	1400.	AVER ERR S/R	=	0.000216	LST SQ ERR S/R	=	0.000252
MAX ERR GH/RT	=	0.000236	TEMP =	1400.	AVER ERR GH/RT	=	0.000181	LST SQ ERR GH/RT	=	0.000189

Co(b) Cobalt Beta above Lambda transition. JANAF,9/1967. T range = 1400.000 to 1768.000 K

MAX REL ERR CP/R	=	0.003322	TEMP =	1600.	AVER REL ERR CP/R	=	0.001779	REL LST SQ ERR CP/R	=	0.002143
MAX REL ERR HH/RT	=	0.000528	TEMP =	1500.	AVER REL ERR HH/RT	=	0.000286	REL LST SQ ERR HH/RT	=	0.000327
MAX REL ERR S/R	=	0.000229	TEMP =	1500.	AVER REL ERR S/R	=	0.000142	REL LST SQ ERR S/R	=	0.000155
MAX REL ERR GH/RT	=	0.000072	TEMP =	1768.	AVER REL ERR GH/RT	=	0.000054	REL LST SQ ERR GH/RT	=	0.000055
MAX ERR CP/R	=	0.015296	TEMP =	1600.	AVER ERR CP/R	=	0.008210	LST SQ ERR CP/R	=	0.009867
MAX ERR HH/RT	=	0.002051	TEMP =	1500.	AVER ERR HH/RT	=	0.001123	LST SQ ERR HH/RT	=	0.001284
MAX ERR S/R	=	0.002310	TEMP =	1500.	AVER ERR S/R	=	0.001474	LST SQ ERR S/R	=	0.001609
MAX ERR GH/RT	=	0.000491	TEMP =	1768.	AVER ERR GH/RT	=	0.000351	LST SQ ERR GH/RT	=	0.000364

Cr(cr) Chromium Crystal. Below lambda trans. JANAF. June 1973. T range = 200.000 to 311.500 K

MAX REL ERR CP/R	=	0.000197	TEMP =	300.	AVER REL ERR CP/R	=	0.000083	REL LST SQ ERR CP/R	=	0.000112
MAX REL ERR HH/RT	=	0.000749	TEMP =	250.	AVER REL ERR HH/RT	=	0.000270	REL LST SQ ERR HH/RT	=	0.000384
MAX REL ERR S/R	=	0.000428	TEMP =	250.	AVER REL ERR S/R	=	0.000119	REL LST SQ ERR S/R	=	0.000197
MAX REL ERR GH/RT	=	0.000472	TEMP =	200.	AVER REL ERR GH/RT	=	0.000159	REL LST SQ ERR GH/RT	=	0.000235
MAX ERR CP/R	=	0.000556	TEMP =	300.	AVER ERR CP/R	=	0.000230	LST SQ ERR CP/R	=	0.000311
MAX ERR HH/RT	=	0.001064	TEMP =	250.	AVER ERR HH/RT	=	0.000373	LST SQ ERR HH/RT	=	0.000528
MAX ERR S/R	=	0.001009	TEMP =	250.	AVER ERR S/R	=	0.000281	LST SQ ERR S/R	=	0.000463
MAX ERR GH/RT	=	0.000306	TEMP =	200.	AVER ERR GH/RT	=	0.000137	LST SQ ERR GH/RT	=	0.000185

Cr(cr) Chromium Crystal. Above lambda trans. JANAF. June 1973. T range = 311.500 to 1000.000 K

MAX REL ERR CP/R	=	0.000321	TEMP =	600.	AVER REL ERR CP/R	=	0.000155	REL LST SQ ERR CP/R	=	0.000180
MAX REL ERR HH/RT	=	0.000119	TEMP =	312.	AVER REL ERR HH/RT	=	0.000050	REL LST SQ ERR HH/RT	=	0.000059
MAX REL ERR S/R	=	0.000064	TEMP =	350.	AVER REL ERR S/R	=	0.000028	REL LST SQ ERR S/R	=	0.000033
MAX REL ERR GH/RT	=	0.000207	TEMP =	350.	AVER REL ERR GH/RT	=	0.000058	REL LST SQ ERR GH/RT	=	0.000078
MAX ERR CP/R	=	0.001071	TEMP =	600.	AVER ERR CP/R	=	0.000506	LST SQ ERR CP/R	=	0.000588
MAX ERR HH/RT	=	0.000232	TEMP =	900.	AVER ERR HH/RT	=	0.000112	LST SQ ERR HH/RT	=	0.000129
MAX ERR S/R	=	0.000213	TEMP =	350.	AVER ERR S/R	=	0.000118	LST SQ ERR S/R	=	0.000130
MAX ERR GH/RT	=	0.000307	TEMP =	350.	AVER ERR GH/RT	=	0.000122	LST SQ ERR GH/RT	=	0.000142

TABLE X. - Continued.

Cr(cr) Chromium Crystal. Above lambda trans. JANAF. June 1973. T range = 1000.000 to 2130.000 K

MAX REL ERR CP/R	=	0.000815	TEMP =	1200.	AVER REL ERR CP/R	=	0.000176	REL LST SQ ERR CP/R	=	0.000324
MAX REL ERR HH/RT	=	0.000057	TEMP =	1100.	AVER REL ERR HH/RT	=	0.000016	REL LST SQ ERR HH/RT	=	0.000023
MAX REL ERR S/R	=	0.000030	TEMP =	1100.	AVER REL ERR S/R	=	0.000013	REL LST SQ ERR S/R	=	0.000015
MAX REL ERR GH/RT	=	0.000031	TEMP =	1000.	AVER REL ERR GH/RT	=	0.000016	REL LST SQ ERR GH/RT	=	0.000018
MAX ERR CP/R	=	0.003447	TEMP =	1200.	AVER ERR CP/R	=	0.000787	LST SQ ERR CP/R	=	0.001353
MAX ERR HH/RT	=	0.000167	TEMP =	1100.	AVER ERR HH/RT	=	0.000051	LST SQ ERR HH/RT	=	0.000069
MAX ERR S/R	=	0.000217	TEMP =	1100.	AVER ERR S/R	=	0.000113	LST SQ ERR S/R	=	0.000129
MAX ERR GH/RT	=	0.000149	TEMP =	1800.	AVER ERR GH/RT	=	0.000086	LST SQ ERR GH/RT	=	0.000093

Cs(cr) Cesium Crystal. CODATA, 1989, p263. T range = 100.000 to 301.590 K

MAX REL ERR CP/R	=	0.000210	TEMP =	200.	AVER REL ERR CP/R	=	0.000091	REL LST SQ ERR CP/R	=	0.000114
MAX REL ERR HH/RT	=	0.002567	TEMP =	100.	AVER REL ERR HH/RT	=	0.000654	REL LST SQ ERR HH/RT	=	0.001182
MAX REL ERR S/R	=	0.001344	TEMP =	100.	AVER REL ERR S/R	=	0.000471	REL LST SQ ERR S/R	=	0.000751
MAX REL ERR GH/RT	=	0.003856	TEMP =	100.	AVER REL ERR GH/RT	=	0.001137	REL LST SQ ERR GH/RT	=	0.001904
MAX ERR CP/R	=	0.000701	TEMP =	200.	AVER ERR CP/R	=	0.000321	LST SQ ERR CP/R	=	0.000395
MAX ERR HH/RT	=	0.006637	TEMP =	100.	AVER ERR HH/RT	=	0.001739	LST SQ ERR HH/RT	=	0.003079
MAX ERR S/R	=	0.008897	TEMP =	200.	AVER ERR S/R	=	0.003570	LST SQ ERR S/R	=	0.005624
MAX ERR GH/RT	=	0.015526	TEMP =	100.	AVER ERR GH/RT	=	0.005284	LST SQ ERR GH/RT	=	0.008438

Cs(l) Cesium Liquid. CODATA, 1989, p263. T range = 301.590 to 1000.000 K

MAX REL ERR CP/R	=	0.000011	TEMP =	600.	AVER REL ERR CP/R	=	0.000005	REL LST SQ ERR CP/R	=	0.000006
MAX REL ERR HH/RT	=	0.000034	TEMP =	302.	AVER REL ERR HH/RT	=	0.000014	REL LST SQ ERR HH/RT	=	0.000016
MAX REL ERR S/R	=	0.000004	TEMP =	900.	AVER REL ERR S/R	=	0.000002	REL LST SQ ERR S/R	=	0.000002
MAX REL ERR GH/RT	=	0.000014	TEMP =	302.	AVER REL ERR GH/RT	=	0.000005	REL LST SQ ERR GH/RT	=	0.000007
MAX ERR CP/R	=	0.000041	TEMP =	600.	AVER ERR CP/R	=	0.000017	LST SQ ERR CP/R	=	0.000022
MAX ERR HH/RT	=	0.000134	TEMP =	302.	AVER ERR HH/RT	=	0.000053	LST SQ ERR HH/RT	=	0.000064
MAX ERR S/R	=	0.000063	TEMP =	900.	AVER ERR S/R	=	0.000028	LST SQ ERR S/R	=	0.000032
MAX ERR GH/RT	=	0.000100	TEMP =	302.	AVER ERR GH/RT	=	0.000048	LST SQ ERR GH/RT	=	0.000058

Cs(l) Cesium Liquid. CODATA, 1989, p263. T range = 1000.000 to 2000.000 K

MAX REL ERR CP/R	=	0.000013	TEMP =	1300.	AVER REL ERR CP/R	=	0.000006	REL LST SQ ERR CP/R	=	0.000008
MAX REL ERR HH/RT	=	0.000012	TEMP =	1000.	AVER REL ERR HH/RT	=	0.000004	REL LST SQ ERR HH/RT	=	0.000006
MAX REL ERR S/R	=	0.000002	TEMP =	1900.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000001
MAX REL ERR GH/RT	=	0.000004	TEMP =	1900.	AVER REL ERR GH/RT	=	0.000002	REL LST SQ ERR GH/RT	=	0.000002
MAX ERR CP/R	=	0.000063	TEMP =	1600.	AVER ERR CP/R	=	0.000030	LST SQ ERR CP/R	=	0.000037
MAX ERR HH/RT	=	0.000046	TEMP =	1000.	AVER ERR HH/RT	=	0.000017	LST SQ ERR HH/RT	=	0.000022
MAX ERR S/R	=	0.000042	TEMP =	1900.	AVER ERR S/R	=	0.000021	LST SQ ERR S/R	=	0.000026
MAX ERR GH/RT	=	0.000055	TEMP =	1900.	AVER ERR GH/RT	=	0.000022	LST SQ ERR GH/RT	=	0.000028

Cu(cr) Copper Cubic Crystal. CODATA, 1989, p226. T range = 200.000 to 1358.000 K

MAX REL ERR CP/R	=	0.000192	TEMP =	400.	AVER REL ERR CP/R	=	0.000056	REL LST SQ ERR CP/R	=	0.000084
MAX REL ERR HH/RT	=	0.000942	TEMP =	200.	AVER REL ERR HH/RT	=	0.000089	REL LST SQ ERR HH/RT	=	0.000255
MAX REL ERR S/R	=	0.000533	TEMP =	200.	AVER REL ERR S/R	=	0.000052	REL LST SQ ERR S/R	=	0.000144
MAX REL ERR GH/RT	=	0.000032	TEMP =	300.	AVER REL ERR GH/RT	=	0.000015	REL LST SQ ERR GH/RT	=	0.000018
MAX ERR CP/R	=	0.000584	TEMP =	400.	AVER ERR CP/R	=	0.000175	LST SQ ERR CP/R	=	0.000256
MAX ERR HH/RT	=	0.001519	TEMP =	200.	AVER ERR HH/RT	=	0.000162	LST SQ ERR HH/RT	=	0.000416
MAX ERR S/R	=	0.001522	TEMP =	200.	AVER ERR S/R	=	0.000199	LST SQ ERR S/R	=	0.000423
MAX ERR GH/RT	=	0.000148	TEMP =	1000.	AVER ERR GH/RT	=	0.000061	LST SQ ERR GH/RT	=	0.000074

D2 Deuterium. TPIS, 1989, v1, pt2, pp45-6. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000057	TEMP =	400.	AVER REL ERR CP/R	=	0.000025	REL LST SQ ERR CP/R	=	0.000031
MAX REL ERR HH/RT	=	0.000079	TEMP =	200.	AVER REL ERR HH/RT	=	0.000022	REL LST SQ ERR HH/RT	=	0.000031
MAX REL ERR S/R	=	0.000014	TEMP =	200.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000005
MAX REL ERR GH/RT	=	0.000009	TEMP =	400.	AVER REL ERR GH/RT	=	0.000003	REL LST SQ ERR GH/RT	=	0.000004
MAX ERR CP/R	=	0.000199	TEMP =	400.	AVER ERR CP/R	=	0.000089	LST SQ ERR CP/R	=	0.000113
MAX ERR HH/RT	=	0.000272	TEMP =	200.	AVER ERR HH/RT	=	0.000075	LST SQ ERR HH/RT	=	0.000107
MAX ERR S/R	=	0.000225	TEMP =	200.	AVER ERR S/R	=	0.000057	LST SQ ERR S/R	=	0.000083
MAX ERR GH/RT	=	0.000141	TEMP =	400.	AVER ERR GH/RT	=	0.000053	LST SQ ERR GH/RT	=	0.000066

D2 Deuterium. TPIS, 1989, v1, pt2, pp45-6. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000170	TEMP =	6000.	AVER REL ERR CP/R	=	0.000047	REL LST SQ ERR CP/R	=	0.000059
MAX REL ERR HH/RT	=	0.000031	TEMP =	1400.	AVER REL ERR HH/RT	=	0.000012	REL LST SQ ERR HH/RT	=	0.000014
MAX REL ERR S/R	=	0.000003	TEMP =	1400.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000002
MAX REL ERR GH/RT	=	0.000004	TEMP =	2100.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000002
MAX ERR CP/R	=	0.000863	TEMP =	6000.	AVER ERR CP/R	=	0.000223	LST SQ ERR CP/R	=	0.000279
MAX ERR HH/RT	=	0.000114	TEMP =	5100.	AVER ERR HH/RT	=	0.000048	LST SQ ERR HH/RT	=	0.000057
MAX ERR S/R	=	0.000079	TEMP =	3600.	AVER ERR S/R	=	0.000036	LST SQ ERR S/R	=	0.000042
MAX ERR GH/RT	=	0.000081	TEMP =	2100.	AVER ERR GH/RT	=	0.000029	LST SQ ERR GH/RT	=	0.000035

D2 Deuterium. TPIS, 1989, v1, pt2, pp45-6. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.000228	TEMP =	20000.	AVER REL ERR CP/R	=	0.000092	REL LST SQ ERR CP/R	=	0.000108
MAX REL ERR HH/RT	=	0.000027	TEMP =	18000.	AVER REL ERR HH/RT	=	0.000009	REL LST SQ ERR HH/RT	=	0.000012
MAX REL ERR S/R	=	0.000004	TEMP =	6600.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000001
MAX REL ERR GH/RT	=	0.000002	TEMP =	14500.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.000956	TEMP =	6200.	AVER ERR CP/R	=	0.000385	LST SQ ERR CP/R	=	0.000440
MAX ERR HH/RT	=	0.000117	TEMP =	6600.	AVER ERR HH/RT	=	0.000042	LST SQ ERR HH/RT	=	0.000053
MAX ERR S/R	=	0.000130	TEMP =	6600.	AVER ERR S/R	=	0.000039	LST SQ ERR S/R	=	0.000047
MAX ERR GH/RT	=	0.000068	TEMP =	14500.	AVER ERR GH/RT	=	0.000028	LST SQ ERR GH/RT	=	0.000033

TABLE X. - Continued.

F2 Fluorine gas. TPIS 1989, v1, pt2, p73. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000097	TEMP =	400.	AVER REL ERR CP/R	=	0.000039	REL LST SQ ERR CP/R	=	0.000050
MAX REL ERR HH/RT	=	0.000140	TEMP =	200.	AVER REL ERR HH/RT	=	0.000024	REL LST SQ ERR HH/RT	=	0.000046
MAX REL ERR S/R	=	0.000020	TEMP =	200.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000006
MAX REL ERR GH/RT	=	0.000005	TEMP =	400.	AVER REL ERR GH/RT	=	0.000002	REL LST SQ ERR GH/RT	=	0.000003
MAX ERR CP/R	=	0.000384	TEMP =	400.	AVER ERR CP/R	=	0.000164	LST SQ ERR CP/R	=	0.000209
MAX ERR HH/RT	=	0.000491	TEMP =	200.	AVER ERR HH/RT	=	0.000088	LST SQ ERR HH/RT	=	0.000163
MAX ERR S/R	=	0.000448	TEMP =	200.	AVER ERR S/R	=	0.000066	LST SQ ERR S/R	=	0.000144
MAX ERR GH/RT	=	0.000115	TEMP =	400.	AVER ERR GH/RT	=	0.000050	LST SQ ERR GH/RT	=	0.000062

F2 Fluorine gas. TPIS 1989, v1, pt2, p73. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.001173	TEMP =	6000.	AVER REL ERR CP/R	=	0.000348	REL LST SQ ERR CP/R	=	0.000409
MAX REL ERR HH/RT	=	0.000062	TEMP =	2200.	AVER REL ERR HH/RT	=	0.000027	REL LST SQ ERR HH/RT	=	0.000032
MAX REL ERR S/R	=	0.000008	TEMP =	2300.	AVER REL ERR S/R	=	0.000004	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000004	TEMP =	1200.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.004065	TEMP =	6000.	AVER ERR CP/R	=	0.001440	LST SQ ERR CP/R	=	0.001649
MAX ERR HH/RT	=	0.000269	TEMP =	2200.	AVER ERR HH/RT	=	0.000118	LST SQ ERR HH/RT	=	0.000139
MAX ERR S/R	=	0.000275	TEMP =	2300.	AVER ERR S/R	=	0.000126	LST SQ ERR S/R	=	0.000146
MAX ERR GH/RT	=	0.000113	TEMP =	1200.	AVER ERR GH/RT	=	0.000036	LST SQ ERR GH/RT	=	0.000043

Fe(a) Iron below Lambda transition. JANAF, MAR.1978. T range = 200.000 to 500.000 K

MAX REL ERR CP/R	=	0.000061	TEMP =	250.	AVER REL ERR CP/R	=	0.000019	REL LST SQ ERR CP/R	=	0.000027
MAX REL ERR HH/RT	=	0.000177	TEMP =	200.	AVER REL ERR HH/RT	=	0.000065	REL LST SQ ERR HH/RT	=	0.000085
MAX REL ERR S/R	=	0.000079	TEMP =	200.	AVER REL ERR S/R	=	0.000015	REL LST SQ ERR S/R	=	0.000029
MAX REL ERR GH/RT	=	0.000108	TEMP =	250.	AVER REL ERR GH/RT	=	0.000054	REL LST SQ ERR GH/RT	=	0.000070
MAX ERR CP/R	=	0.000173	TEMP =	250.	AVER ERR CP/R	=	0.000058	LST SQ ERR CP/R	=	0.000079
MAX ERR HH/RT	=	0.000234	TEMP =	200.	AVER ERR HH/RT	=	0.000111	LST SQ ERR HH/RT	=	0.000135
MAX ERR S/R	=	0.000170	TEMP =	200.	AVER ERR S/R	=	0.000040	LST SQ ERR S/R	=	0.000066
MAX ERR GH/RT	=	0.000170	TEMP =	350.	AVER ERR GH/RT	=	0.000078	LST SQ ERR GH/RT	=	0.000101

Fe(a) Iron below Lambda transition. JANAF, MAR.1978. T range = 500.000 to 800.000 K

MAX REL ERR CP/R	=	0.000095	TEMP =	700.	AVER REL ERR CP/R	=	0.000048	REL LST SQ ERR CP/R	=	0.000059
MAX REL ERR HH/RT	=	0.000290	TEMP =	800.	AVER REL ERR HH/RT	=	0.000109	REL LST SQ ERR HH/RT	=	0.000152
MAX REL ERR S/R	=	0.000140	TEMP =	800.	AVER REL ERR S/R	=	0.000048	REL LST SQ ERR S/R	=	0.000071
MAX REL ERR GH/RT	=	0.000041	TEMP =	550.	AVER REL ERR GH/RT	=	0.000016	REL LST SQ ERR GH/RT	=	0.000021
MAX ERR CP/R	=	0.000394	TEMP =	700.	AVER ERR CP/R	=	0.000192	LST SQ ERR CP/R	=	0.000237
MAX ERR HH/RT	=	0.000875	TEMP =	800.	AVER ERR HH/RT	=	0.000315	LST SQ ERR HH/RT	=	0.000449
MAX ERR S/R	=	0.000956	TEMP =	800.	AVER ERR S/R	=	0.000312	LST SQ ERR S/R	=	0.000479
MAX ERR GH/RT	=	0.000116	TEMP =	550.	AVER ERR GH/RT	=	0.000049	LST SQ ERR GH/RT	=	0.000065

Fe(a) Iron below Lambda transition. JANAF, MAR.1978. T range = 800.000 to 1042.000 K

MAX REL ERR CP/R	=	0.000794	TEMP =	1000.	AVER REL ERR CP/R	=	0.000373	REL LST SQ ERR CP/R	=	0.000485
MAX REL ERR HH/RT	=	0.005283	TEMP =	1000.	AVER REL ERR HH/RT	=	0.001540	REL LST SQ ERR HH/RT	=	0.002146
MAX REL ERR S/R	=	0.002309	TEMP =	1000.	AVER REL ERR S/R	=	0.000638	REL LST SQ ERR S/R	=	0.000927
MAX REL ERR GH/RT	=	0.000205	TEMP =	950.	AVER REL ERR GH/RT	=	0.000094	REL LST SQ ERR GH/RT	=	0.000107
MAX ERR CP/R	=	0.006355	TEMP =	1030.	AVER ERR CP/R	=	0.002618	LST SQ ERR CP/R	=	0.003382
MAX ERR HH/RT	=	0.018321	TEMP =	1000.	AVER ERR HH/RT	=	0.005301	LST SQ ERR HH/RT	=	0.007394
MAX ERR S/R	=	0.018511	TEMP =	1000.	AVER ERR S/R	=	0.005049	LST SQ ERR S/R	=	0.007368
MAX ERR GH/RT	=	0.000899	TEMP =	950.	AVER ERR GH/RT	=	0.000423	LST SQ ERR GH/RT	=	0.000481

Fe(a) Iron above Lambda transition. JANAF, MAR.1978. T range = 1042.000 to 1184.000 K

MAX REL ERR CP/R	=	0.001864	TEMP =	1100.	AVER REL ERR CP/R	=	0.000759	REL LST SQ ERR CP/R	=	0.001091
MAX REL ERR HH/RT	=	0.018458	TEMP =	1100.	AVER REL ERR HH/RT	=	0.009081	REL LST SQ ERR HH/RT	=	0.011607
MAX REL ERR S/R	=	0.008274	TEMP =	1100.	AVER REL ERR S/R	=	0.004204	REL LST SQ ERR S/R	=	0.005313
MAX REL ERR GH/RT	=	0.001099	TEMP =	1184.	AVER REL ERR GH/RT	=	0.000545	REL LST SQ ERR GH/RT	=	0.000685
MAX ERR CP/R	=	0.010401	TEMP =	1100.	AVER ERR CP/R	=	0.004375	LST SQ ERR CP/R	=	0.006107
MAX ERR HH/RT	=	0.069582	TEMP =	1100.	AVER ERR HH/RT	=	0.034465	LST SQ ERR HH/RT	=	0.043942
MAX ERR S/R	=	0.071707	TEMP =	1100.	AVER ERR S/R	=	0.036911	LST SQ ERR S/R	=	0.046446
MAX ERR GH/RT	=	0.005693	TEMP =	1184.	AVER ERR GH/RT	=	0.002766	LST SQ ERR GH/RT	=	0.003519

Fe(c) Iron Gamma Crystal. JANAF, MAR.1978. T range = 1184.000 to 1665.000 K

MAX REL ERR CP/R	=	0.005611	TEMP =	1300.	AVER REL ERR CP/R	=	0.001955	REL LST SQ ERR CP/R	=	0.002623
MAX REL ERR HH/RT	=	0.007738	TEMP =	1184.	AVER REL ERR HH/RT	=	0.006042	REL LST SQ ERR HH/RT	=	0.006162
MAX REL ERR S/R	=	0.003978	TEMP =	1184.	AVER REL ERR S/R	=	0.003473	REL LST SQ ERR S/R	=	0.003492
MAX REL ERR GH/RT	=	0.002111	TEMP =	1665.	AVER REL ERR GH/RT	=	0.001653	REL LST SQ ERR GH/RT	=	0.001696
MAX ERR CP/R	=	0.023522	TEMP =	1300.	AVER ERR CP/R	=	0.008315	LST SQ ERR CP/R	=	0.011071
MAX ERR HH/RT	=	0.030677	TEMP =	1184.	AVER ERR HH/RT	=	0.024161	LST SQ ERR HH/RT	=	0.024602
MAX ERR S/R	=	0.036370	TEMP =	1184.	AVER ERR S/R	=	0.033997	LST SQ ERR S/R	=	0.034037
MAX ERR GH/RT	=	0.013817	TEMP =	1665.	AVER ERR GH/RT	=	0.009836	LST SQ ERR GH/RT	=	0.010283

Fe(d) Iron Delta Crystal. JANAF, MAR.1978. T range = 1665.000 to 1809.000 K

MAX REL ERR CP/R	=	0.001379	TEMP =	1700.	AVER REL ERR CP/R	=	0.000456	REL LST SQ ERR CP/R	=	0.000722
MAX REL ERR HH/RT	=	0.004461	TEMP =	1665.	AVER REL ERR HH/RT	=	0.004162	REL LST SQ ERR HH/RT	=	0.004169
MAX REL ERR S/R	=	0.003020	TEMP =	1665.	AVER REL ERR S/R	=	0.002931	REL LST SQ ERR S/R	=	0.002932
MAX REL ERR GH/RT	=	0.002214	TEMP =	1800.	AVER REL ERR GH/RT	=	0.002168	REL LST SQ ERR GH/RT	=	0.002168
MAX ERR CP/R	=	0.006878	TEMP =	1700.	AVER ERR CP/R	=	0.002286	LST SQ ERR CP/R	=	0.003610
MAX ERR HH/RT	=	0.018408	TEMP =	1665.	AVER ERR HH/RT	=	0.017331	LST SQ ERR HH/RT	=	0.017353
MAX ERR S/R	=	0.032226	TEMP =	1665.	AVER ERR S/R	=	0.031932	LST SQ ERR S/R	=	0.031933
MAX ERR GH/RT	=	0.015238	TEMP =	1809.	AVER ERR GH/RT	=	0.014601	LST SQ ERR GH/RT	=	0.014615

TABLE X. - Continued.

Ge(cr) Germanium Cubic. TPIS 1991, v2, pt1, p308, pt2 p268. T range = 200.000 to 400.000 K

MAX REL ERR CP/R	=	0.000129	TEMP =	300.	AVER REL ERR CP/R	=	0.000029	REL LST SQ ERR CP/R	= 0.000058
MAX REL ERR HH/RT	=	0.000603	TEMP =	200.	AVER REL ERR HH/RT	=	0.000141	REL LST SQ ERR HH/RT	= 0.000273
MAX REL ERR S/R	=	0.000378	TEMP =	200.	AVER REL ERR S/R	=	0.000088	REL LST SQ ERR S/R	= 0.000171
MAX REL ERR GH/RT	=	0.001572	TEMP =	200.	AVER REL ERR GH/RT	=	0.000319	REL LST SQ ERR GH/RT	= 0.000703
MAX ERR CP/R	=	0.000360	TEMP =	300.	AVER ERR CP/R	=	0.000082	LST SQ ERR CP/R	= 0.000162
MAX ERR HH/RT	=	0.000883	TEMP =	200.	AVER ERR HH/RT	=	0.000218	LST SQ ERR HH/RT	= 0.000405
MAX ERR S/R	=	0.001008	TEMP =	200.	AVER ERR S/R	=	0.000253	LST SQ ERR S/R	= 0.000461
MAX ERR GH/RT	=	0.001891	TEMP =	200.	AVER ERR GH/RT	=	0.000388	LST SQ ERR GH/RT	= 0.000846

Ge(cr) Germanium Cubic. TPIS 1991, v2, pt1, p308, pt2 p268. T range = 400.000 to 1211.400 K

MAX REL ERR CP/R	=	0.000007	TEMP =	600.	AVER REL ERR CP/R	=	0.000004	REL LST SQ ERR CP/R	= 0.000005
MAX REL ERR HH/RT	=	0.000003	TEMP =	400.	AVER REL ERR HH/RT	=	0.000002	REL LST SQ ERR HH/RT	= 0.000002
MAX REL ERR S/R	=	0.000008	TEMP =	400.	AVER REL ERR S/R	=	0.000005	REL LST SQ ERR S/R	= 0.000005
MAX REL ERR GH/RT	=	0.000013	TEMP =	400.	AVER REL ERR GH/RT	=	0.000008	REL LST SQ ERR GH/RT	= 0.000009
MAX ERR CP/R	=	0.000023	TEMP =	700.	AVER ERR CP/R	=	0.000012	LST SQ ERR CP/R	= 0.000014
MAX ERR HH/RT	=	0.000008	TEMP =	1000.	AVER ERR HH/RT	=	0.000006	LST SQ ERR HH/RT	= 0.000006
MAX ERR S/R	=	0.000038	TEMP =	400.	AVER ERR S/R	=	0.000028	LST SQ ERR S/R	= 0.000029
MAX ERR GH/RT	=	0.000033	TEMP =	600.	AVER ERR GH/RT	=	0.000031	LST SQ ERR GH/RT	= 0.000031

H2 Hydrogen. GLUSHKO ET.AL. v1, pt2, 1978, pp31-32. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000430	TEMP =	250.	AVER REL ERR CP/R	=	0.000179	REL LST SQ ERR CP/R	= 0.000217
MAX REL ERR HH/RT	=	0.000153	TEMP =	400.	AVER REL ERR HH/RT	=	0.000059	REL LST SQ ERR HH/RT	= 0.000080
MAX REL ERR S/R	=	0.000024	TEMP =	400.	AVER REL ERR S/R	=	0.000012	REL LST SQ ERR S/R	= 0.000013
MAX REL ERR GH/RT	=	0.000046	TEMP =	250.	AVER REL ERR GH/RT	=	0.000011	REL LST SQ ERR GH/RT	= 0.000017
MAX ERR CP/R	=	0.001465	TEMP =	250.	AVER ERR CP/R	=	0.000626	LST SQ ERR CP/R	= 0.000758
MAX ERR HH/RT	=	0.000524	TEMP =	400.	AVER ERR HH/RT	=	0.000202	LST SQ ERR HH/RT	= 0.000275
MAX ERR S/R	=	0.000394	TEMP =	400.	AVER ERR S/R	=	0.000198	LST SQ ERR S/R	= 0.000222
MAX ERR GH/RT	=	0.000544	TEMP =	250.	AVER ERR GH/RT	=	0.000144	LST SQ ERR GH/RT	= 0.000206

H2 Hydrogen. GLUSHKO ET.AL. v1, pt2, 1978, pp31-32. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000427	TEMP =	1100.	AVER REL ERR CP/R	=	0.000120	REL LST SQ ERR CP/R	= 0.000144
MAX REL ERR HH/RT	=	0.000078	TEMP =	1300.	AVER REL ERR HH/RT	=	0.000016	REL LST SQ ERR HH/RT	= 0.000023
MAX REL ERR S/R	=	0.000008	TEMP =	1000.	AVER REL ERR S/R	=	0.000002	REL LST SQ ERR S/R	= 0.000003
MAX REL ERR GH/RT	=	0.000012	TEMP =	1100.	AVER REL ERR GH/RT	=	0.000003	REL LST SQ ERR GH/RT	= 0.000004
MAX ERR CP/R	=	0.001569	TEMP =	1100.	AVER ERR CP/R	=	0.000534	LST SQ ERR CP/R	= 0.000628
MAX ERR HH/RT	=	0.000277	TEMP =	1300.	AVER ERR HH/RT	=	0.000061	LST SQ ERR HH/RT	= 0.000086
MAX ERR S/R	=	0.000151	TEMP =	1000.	AVER ERR S/R	=	0.000055	LST SQ ERR S/R	= 0.000067
MAX ERR GH/RT	=	0.000196	TEMP =	1100.	AVER ERR GH/RT	=	0.000066	LST SQ ERR GH/RT	= 0.000083

H2 Hydrogen. GLUSHKO ET.AL. v1, pt2, 1978, pp31-32. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.000310	TEMP =	6000.	AVER REL ERR CP/R	=	0.000097	REL LST SQ ERR CP/R	= 0.000117
MAX REL ERR HH/RT	=	0.000024	TEMP =	6600.	AVER REL ERR HH/RT	=	0.000008	REL LST SQ ERR HH/RT	= 0.000010
MAX REL ERR S/R	=	0.000004	TEMP =	12500.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	= 0.000002
MAX REL ERR GH/RT	=	0.000004	TEMP =	6600.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	= 0.000002
MAX ERR CP/R	=	0.001564	TEMP =	6000.	AVER ERR CP/R	=	0.000417	LST SQ ERR CP/R	= 0.000518
MAX ERR HH/RT	=	0.000106	TEMP =	6600.	AVER ERR HH/RT	=	0.000035	LST SQ ERR HH/RT	= 0.000044
MAX ERR S/R	=	0.000118	TEMP =	12500.	AVER ERR S/R	=	0.000040	LST SQ ERR S/R	= 0.000049
MAX ERR GH/RT	=	0.000089	TEMP =	14500.	AVER ERR GH/RT	=	0.000034	LST SQ ERR GH/RT	= 0.000042

He Helium. NSRDS-NBS 35, 1971. Temperature cutoff. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.000324	TEMP =	17500.	AVER REL ERR CP/R	=	0.000042	REL LST SQ ERR CP/R	= 0.000078
MAX REL ERR HH/RT	=	0.000057	TEMP =	19500.	AVER REL ERR HH/RT	=	0.000008	REL LST SQ ERR HH/RT	= 0.000017
MAX REL ERR S/R	=	0.000006	TEMP =	19500.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	= 0.000002
MAX REL ERR GH/RT	=	0.000001	TEMP =	20000.	AVER REL ERR GH/RT	=	0.000000	REL LST SQ ERR GH/RT	= 0.000000
MAX ERR CP/R	=	0.000812	TEMP =	17500.	AVER ERR CP/R	=	0.000105	LST SQ ERR CP/R	= 0.000195
MAX ERR HH/RT	=	0.000142	TEMP =	19500.	AVER ERR HH/RT	=	0.000020	LST SQ ERR HH/RT	= 0.000043
MAX ERR S/R	=	0.000154	TEMP =	19500.	AVER ERR S/R	=	0.000024	LST SQ ERR S/R	= 0.000046
MAX ERR GH/RT	=	0.000015	TEMP =	20000.	AVER ERR GH/RT	=	0.000004	LST SQ ERR GH/RT	= 0.000005

Hg(cr) Mercury Tetragonal Crystal. JANAF, Dec. 1961. T range = 100.000 to 234.290 K

MAX REL ERR CP/R	=	0.000103	TEMP =	150.	AVER REL ERR CP/R	=	0.000037	REL LST SQ ERR CP/R	= 0.000054
MAX REL ERR HH/RT	=	0.000185	TEMP =	100.	AVER REL ERR HH/RT	=	0.000080	REL LST SQ ERR HH/RT	= 0.000104
MAX REL ERR S/R	=	0.000038	TEMP =	100.	AVER REL ERR S/R	=	0.000014	REL LST SQ ERR S/R	= 0.000020
MAX REL ERR GH/RT	=	0.000087	TEMP =	100.	AVER REL ERR GH/RT	=	0.000040	REL LST SQ ERR GH/RT	= 0.000051
MAX ERR CP/R	=	0.000319	TEMP =	150.	AVER ERR CP/R	=	0.000115	LST SQ ERR CP/R	= 0.000167
MAX ERR HH/RT	=	0.000380	TEMP =	100.	AVER ERR HH/RT	=	0.000177	LST SQ ERR HH/RT	= 0.000223
MAX ERR S/R	=	0.000170	TEMP =	100.	AVER ERR S/R	=	0.000068	LST SQ ERR S/R	= 0.000094
MAX ERR GH/RT	=	0.000210	TEMP =	100.	AVER ERR GH/RT	=	0.000121	LST SQ ERR GH/RT	= 0.000146

Hg(l) Mercury Liquid. JANAF, Dec. 1961. T range = 234.290 to 600.000 K

MAX REL ERR CP/R	=	0.000108	TEMP =	298.	AVER REL ERR CP/R	=	0.000044	REL LST SQ ERR CP/R	= 0.000055
MAX REL ERR HH/RT	=	0.000086	TEMP =	350.	AVER REL ERR HH/RT	=	0.000039	REL LST SQ ERR HH/RT	= 0.000046
MAX REL ERR S/R	=	0.000023	TEMP =	300.	AVER REL ERR S/R	=	0.000014	REL LST SQ ERR S/R	= 0.000016
MAX REL ERR GH/RT	=	0.000032	TEMP =	250.	AVER REL ERR GH/RT	=	0.000011	REL LST SQ ERR GH/RT	= 0.000015
MAX ERR CP/R	=	0.000365	TEMP =	298.	AVER ERR CP/R	=	0.000147	LST SQ ERR CP/R	= 0.000184
MAX ERR HH/RT	=	0.000318	TEMP =	350.	AVER ERR HH/RT	=	0.000142	LST SQ ERR HH/RT	= 0.000171
MAX ERR S/R	=	0.000208	TEMP =	300.	AVER ERR S/R	=	0.000137	LST SQ ERR S/R	= 0.000157
MAX ERR GH/RT	=	0.000149	TEMP =	250.	AVER ERR GH/RT	=	0.000063	LST SQ ERR GH/RT	= 0.000084

TABLE X. - Continued.

Hg(l) Mercury Liquid. JANAF, Dec. 1961. T range = 600.000 to 2000.000 K

MAX REL ERR CP/R	=	0.000081	TEMP =	800.	AVER REL ERR CP/R	=	0.000035	REL LST SQ ERR CP/R	=	0.000040
MAX REL ERR HH/RT	=	0.000022	TEMP =	900.	AVER REL ERR HH/RT	=	0.000010	REL LST SQ ERR HH/RT	=	0.000011
MAX REL ERR S/R	=	0.000007	TEMP =	1200.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000015	TEMP =	900.	AVER REL ERR GH/RT	=	0.000007	REL LST SQ ERR GH/RT	=	0.000009
MAX ERR CP/R	=	0.000269	TEMP =	800.	AVER ERR CP/R	=	0.000122	LST SQ ERR CP/R	=	0.000139
MAX ERR HH/RT	=	0.000076	TEMP =	900.	AVER ERR HH/RT	=	0.000033	LST SQ ERR HH/RT	=	0.000039
MAX ERR S/R	=	0.000102	TEMP =	1200.	AVER ERR S/R	=	0.000043	LST SQ ERR S/R	=	0.000052
MAX ERR GH/RT	=	0.000144	TEMP =	900.	AVER ERR GH/RT	=	0.000071	LST SQ ERR GH/RT	=	0.000083

I2(cr) Iodine Rhombic Crystal. TPIS 1989, v1, pt2, p315. T range = 200.000 to 386.750 K

MAX REL ERR CP/R	=	0.002344	TEMP =	320.	AVER REL ERR CP/R	=	0.000446	REL LST SQ ERR CP/R	=	0.000682
MAX REL ERR HH/RT	=	0.000232	TEMP =	200.	AVER REL ERR HH/RT	=	0.000057	REL LST SQ ERR HH/RT	=	0.000085
MAX REL ERR S/R	=	0.000101	TEMP =	200.	AVER REL ERR S/R	=	0.000022	REL LST SQ ERR S/R	=	0.000035
MAX REL ERR GH/RT	=	0.000046	TEMP =	270.	AVER REL ERR GH/RT	=	0.000010	REL LST SQ ERR GH/RT	=	0.000015
MAX ERR CP/R	=	0.015607	TEMP =	320.	AVER ERR CP/R	=	0.002953	LST SQ ERR CP/R	=	0.004529
MAX ERR HH/RT	=	0.001115	TEMP =	200.	AVER ERR HH/RT	=	0.000292	LST SQ ERR HH/RT	=	0.000422
MAX ERR S/R	=	0.001148	TEMP =	200.	AVER ERR S/R	=	0.000285	LST SQ ERR S/R	=	0.000429
MAX ERR GH/RT	=	0.000372	TEMP =	270.	AVER ERR GH/RT	=	0.000082	LST SQ ERR GH/RT	=	0.000121

K(cr) Potassium Cubic Crystal. CODATA 1989, p257. T range = 200.000 to 336.860 K

MAX REL ERR CP/R	=	0.000584	TEMP =	300.	AVER REL ERR CP/R	=	0.000156	REL LST SQ ERR CP/R	=	0.000293
MAX REL ERR HH/RT	=	0.000237	TEMP =	337.	AVER REL ERR HH/RT	=	0.000105	REL LST SQ ERR HH/RT	=	0.000143
MAX REL ERR S/R	=	0.000102	TEMP =	337.	AVER REL ERR S/R	=	0.000036	REL LST SQ ERR S/R	=	0.000055
MAX REL ERR GH/RT	=	0.000172	TEMP =	200.	AVER REL ERR GH/RT	=	0.000055	REL LST SQ ERR GH/RT	=	0.000088
MAX ERR CP/R	=	0.002085	TEMP =	300.	AVER ERR CP/R	=	0.000558	LST SQ ERR CP/R	=	0.001044
MAX ERR HH/RT	=	0.000701	TEMP =	337.	AVER ERR HH/RT	=	0.000295	LST SQ ERR HH/RT	=	0.000409
MAX ERR S/R	=	0.000840	TEMP =	337.	AVER ERR S/R	=	0.000282	LST SQ ERR S/R	=	0.000438
MAX ERR GH/RT	=	0.000660	TEMP =	200.	AVER ERR GH/RT	=	0.000227	LST SQ ERR GH/RT	=	0.000341

K(l) Potassium Liquid. CODATA 1989, p257. T range = 336.860 to 2200.000 K

MAX REL ERR CP/R	=	0.000269	TEMP =	400.	AVER REL ERR CP/R	=	0.000055	REL LST SQ ERR CP/R	=	0.000094
MAX REL ERR HH/RT	=	0.000185	TEMP =	337.	AVER REL ERR HH/RT	=	0.000036	REL LST SQ ERR HH/RT	=	0.000059
MAX REL ERR S/R	=	0.000093	TEMP =	337.	AVER REL ERR S/R	=	0.000024	REL LST SQ ERR S/R	=	0.000033
MAX REL ERR GH/RT	=	0.000041	TEMP =	600.	AVER REL ERR GH/RT	=	0.000028	REL LST SQ ERR GH/RT	=	0.000028
MAX ERR CP/R	=	0.001022	TEMP =	400.	AVER ERR CP/R	=	0.000211	LST SQ ERR CP/R	=	0.000353
MAX ERR HH/RT	=	0.000701	TEMP =	337.	AVER ERR HH/RT	=	0.000138	LST SQ ERR HH/RT	=	0.000225
MAX ERR S/R	=	0.000840	TEMP =	337.	AVER ERR S/R	=	0.000290	LST SQ ERR S/R	=	0.000344
MAX ERR GH/RT	=	0.000359	TEMP =	900.	AVER ERR GH/RT	=	0.000261	LST SQ ERR GH/RT	=	0.000268

Kr Krypton. NSRDS-NBS 35, 1971. Temperature cutoff. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000008	TEMP =	6000.	AVER REL ERR CP/R	=	0.000001	REL LST SQ ERR CP/R	=	0.000002
MAX REL ERR HH/RT	=	0.000000	TEMP =	6000.	AVER REL ERR HH/RT	=	0.000000	REL LST SQ ERR HH/RT	=	0.000000
MAX REL ERR S/R	=	0.000000	TEMP =	6000.	AVER REL ERR S/R	=	0.000000	REL LST SQ ERR S/R	=	0.000000
MAX REL ERR GH/RT	=	0.000000	TEMP =	6000.	AVER REL ERR GH/RT	=	0.000000	REL LST SQ ERR GH/RT	=	0.000000
MAX ERR CP/R	=	0.000021	TEMP =	6000.	AVER ERR CP/R	=	0.000001	LST SQ ERR CP/R	=	0.000004
MAX ERR HH/RT	=	0.000001	TEMP =	6000.	AVER ERR HH/RT	=	0.000000	LST SQ ERR HH/RT	=	0.000000
MAX ERR S/R	=	0.000001	TEMP =	6000.	AVER ERR S/R	=	0.000000	LST SQ ERR S/R	=	0.000000
MAX ERR GH/RT	=	0.000000	TEMP =	6000.	AVER ERR GH/RT	=	0.000000	LST SQ ERR GH/RT	=	0.000000

Kr Krypton. NSRDS-NBS 35, 1971. Temperature cutoff. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.021578	TEMP =	13500.	AVER REL ERR CP/R	=	0.005630	REL LST SQ ERR CP/R	=	0.007376
MAX REL ERR HH/RT	=	0.022714	TEMP =	20000.	AVER REL ERR HH/RT	=	0.001650	REL LST SQ ERR HH/RT	=	0.004231
MAX REL ERR S/R	=	0.002741	TEMP =	20000.	AVER REL ERR S/R	=	0.000189	REL LST SQ ERR S/R	=	0.000509
MAX REL ERR GH/RT	=	0.000519	TEMP =	20000.	AVER REL ERR GH/RT	=	0.000038	REL LST SQ ERR GH/RT	=	0.000099
MAX ERR CP/R	=	0.071605	TEMP =	19000.	AVER ERR CP/R	=	0.018127	LST SQ ERR CP/R	=	0.025027
MAX ERR HH/RT	=	0.070378	TEMP =	20000.	AVER ERR HH/RT	=	0.004768	LST SQ ERR HH/RT	=	0.012991
MAX ERR S/R	=	0.084823	TEMP =	20000.	AVER ERR S/R	=	0.005730	LST SQ ERR S/R	=	0.015709
MAX ERR GH/RT	=	0.014445	TEMP =	20000.	AVER ERR GH/RT	=	0.001032	LST SQ ERR GH/RT	=	0.002742

Li(cr) Lithium Crystal. Gurvich 1982,vIV,pt 1,p245;pt 2,p286. T range = 200.000 to 298.150 K

MAX REL ERR CP/R	=	0.000382	TEMP =	250.	AVER REL ERR CP/R	=	0.000164	REL LST SQ ERR CP/R	=	0.000229
MAX REL ERR HH/RT	=	0.002315	TEMP =	200.	AVER REL ERR HH/RT	=	0.000839	REL LST SQ ERR HH/RT	=	0.001342
MAX REL ERR S/R	=	0.000075	TEMP =	200.	AVER REL ERR S/R	=	0.000045	REL LST SQ ERR S/R	=	0.000056
MAX REL ERR GH/RT	=	0.003132	TEMP =	200.	AVER REL ERR GH/RT	=	0.001085	REL LST SQ ERR GH/RT	=	0.001810
MAX ERR CP/R	=	0.001074	TEMP =	250.	AVER ERR CP/R	=	0.000453	LST SQ ERR CP/R	=	0.000642
MAX ERR HH/RT	=	0.003255	TEMP =	200.	AVER ERR HH/RT	=	0.001198	LST SQ ERR HH/RT	=	0.001889
MAX ERR S/R	=	0.000180	TEMP =	200.	AVER ERR S/R	=	0.000120	LST SQ ERR S/R	=	0.000146
MAX ERR GH/RT	=	0.003075	TEMP =	200.	AVER ERR GH/RT	=	0.001078	LST SQ ERR GH/RT	=	0.001778

Li(cr) Lithium Crystal. Gurvich 1982,vIV,pt 1,p245;pt 2,p286. T range = 298.150 to 453.690 K

MAX REL ERR CP/R	=	0.000010	TEMP =	300.	AVER REL ERR CP/R	=	0.000002	REL LST SQ ERR CP/R	=	0.000004
MAX REL ERR HH/RT	=	0.000001	TEMP =	350.	AVER REL ERR HH/RT	=	0.000000	REL LST SQ ERR HH/RT	=	0.000001
MAX REL ERR S/R	=	0.000001	TEMP =	350.	AVER REL ERR S/R	=	0.000000	REL LST SQ ERR S/R	=	0.000000
MAX REL ERR GH/RT	=	0.000000	TEMP =	454.	AVER REL ERR GH/RT	=	0.000000	REL LST SQ ERR GH/RT	=	0.000000
MAX ERR CP/R	=	0.000029	TEMP =	300.	AVER ERR CP/R	=	0.000007	LST SQ ERR CP/R	=	0.000013
MAX ERR HH/RT	=	0.000002	TEMP =	350.	AVER ERR HH/RT	=	0.000001	LST SQ ERR HH/RT	=	0.000001
MAX ERR S/R	=	0.000002	TEMP =	350.	AVER ERR S/R	=	0.000001	LST SQ ERR S/R	=	0.000001
MAX ERR GH/RT	=	0.000001	TEMP =	454.	AVER ERR GH/RT	=	0.000000	LST SQ ERR GH/RT	=	0.000000

TABLE X. - Continued.

Mn(a) Manganese Alpha crystal. JANAF Sep.1967. T range = 200.000 to 980.000 K

MAX REL ERR CP/R	=	0.002124	TEMP =	550.	AVER REL ERR CP/R	=	0.000764	REL LST SQ ERR CP/R	=	0.001063
MAX REL ERR HH/RT	=	0.002445	TEMP =	500.	AVER REL ERR HH/RT	=	0.000720	REL LST SQ ERR HH/RT	=	0.001025
MAX REL ERR S/R	=	0.001259	TEMP =	500.	AVER REL ERR S/R	=	0.000477	REL LST SQ ERR S/R	=	0.000630
MAX REL ERR GH/RT	=	0.000582	TEMP =	980.	AVER REL ERR GH/RT	=	0.000290	REL LST SQ ERR GH/RT	=	0.000372
MAX ERR CP/R	=	0.007946	TEMP =	550.	AVER ERR CP/R	=	0.002855	LST SQ ERR CP/R	=	0.003982
MAX ERR HH/RT	=	0.006332	TEMP =	500.	AVER ERR HH/RT	=	0.001945	LST SQ ERR HH/RT	=	0.002767
MAX ERR S/R	=	0.007073	TEMP =	500.	AVER ERR S/R	=	0.003033	LST SQ ERR S/R	=	0.004029
MAX ERR GH/RT	=	0.002917	TEMP =	980.	AVER ERR GH/RT	=	0.001133	LST SQ ERR GH/RT	=	0.001581

Mn(b) Manganese Beta crystal. JANAF Sep.1967. T range = 980.000 to 1361.000 K

MAX REL ERR CP/R	=	0.000684	TEMP =	1100.	AVER REL ERR CP/R	=	0.000186	REL LST SQ ERR CP/R	=	0.000307
MAX REL ERR HH/RT	=	0.000499	TEMP =	980.	AVER REL ERR HH/RT	=	0.000355	REL LST SQ ERR HH/RT	=	0.000371
MAX REL ERR S/R	=	0.000547	TEMP =	980.	AVER REL ERR S/R	=	0.000478	REL LST SQ ERR S/R	=	0.000481
MAX REL ERR GH/RT	=	0.000582	TEMP =	980.	AVER REL ERR GH/RT	=	0.000559	REL LST SQ ERR GH/RT	=	0.000560
MAX ERR CP/R	=	0.003138	TEMP =	1100.	AVER ERR CP/R	=	0.000859	LST SQ ERR CP/R	=	0.001412
MAX ERR HH/RT	=	0.001795	TEMP =	980.	AVER ERR HH/RT	=	0.001314	LST SQ ERR HH/RT	=	0.001364
MAX ERR S/R	=	0.004725	TEMP =	1000.	AVER ERR S/R	=	0.004437	LST SQ ERR S/R	=	0.004442
MAX ERR GH/RT	=	0.003357	TEMP =	1361.	AVER ERR GH/RT	=	0.003123	LST SQ ERR GH/RT	=	0.003127

Mn(c) Manganese Gamma crystal. JANAF Sep.1967. T range = 1361.000 to 1412.000 K

MAX REL ERR CP/R	=	0.000060	TEMP =	1400.	AVER REL ERR CP/R	=	0.000026	REL LST SQ ERR CP/R	=	0.000036
MAX REL ERR HH/RT	=	0.000210	TEMP =	1361.	AVER REL ERR HH/RT	=	0.000197	REL LST SQ ERR HH/RT	=	0.000198
MAX REL ERR S/R	=	0.000409	TEMP =	1361.	AVER REL ERR S/R	=	0.000399	REL LST SQ ERR S/R	=	0.000399
MAX REL ERR GH/RT	=	0.000538	TEMP =	1361.	AVER REL ERR GH/RT	=	0.000529	REL LST SQ ERR GH/RT	=	0.000529
MAX ERR CP/R	=	0.000315	TEMP =	1400.	AVER ERR CP/R	=	0.000138	LST SQ ERR CP/R	=	0.000191
MAX ERR HH/RT	=	0.000856	TEMP =	1361.	AVER ERR HH/RT	=	0.000808	LST SQ ERR HH/RT	=	0.000809
MAX ERR S/R	=	0.004213	TEMP =	1361.	AVER ERR S/R	=	0.004154	LST SQ ERR S/R	=	0.004154
MAX ERR GH/RT	=	0.003357	TEMP =	1361.	AVER ERR GH/RT	=	0.003345	LST SQ ERR GH/RT	=	0.003345

Mn(d) Manganese Delta crystal. JANAF Sep.1967. T range = 1412.000 to 1519.000 K

MAX REL ERR CP/R	=	0.000139	TEMP =	1500.	AVER REL ERR CP/R	=	0.000068	REL LST SQ ERR CP/R	=	0.000088
MAX REL ERR HH/RT	=	0.000186	TEMP =	1412.	AVER REL ERR HH/RT	=	0.000160	REL LST SQ ERR HH/RT	=	0.000161
MAX REL ERR S/R	=	0.000387	TEMP =	1412.	AVER REL ERR S/R	=	0.000373	REL LST SQ ERR S/R	=	0.000373
MAX REL ERR GH/RT	=	0.000521	TEMP =	1412.	AVER REL ERR GH/RT	=	0.000514	REL LST SQ ERR GH/RT	=	0.000514
MAX ERR CP/R	=	0.000771	TEMP =	1500.	AVER ERR CP/R	=	0.000374	LST SQ ERR CP/R	=	0.000489
MAX ERR HH/RT	=	0.000795	TEMP =	1412.	AVER ERR HH/RT	=	0.000690	LST SQ ERR HH/RT	=	0.000694
MAX ERR S/R	=	0.004122	TEMP =	1412.	AVER ERR S/R	=	0.004070	LST SQ ERR S/R	=	0.004070
MAX ERR GH/RT	=	0.003430	TEMP =	1519.	AVER ERR GH/RT	=	0.003380	LST SQ ERR GH/RT	=	0.003380

Mo(cr) Molybdenum Crystal. JANAF Mar.1978. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000354	TEMP =	450.	AVER REL ERR CP/R	=	0.000115	REL LST SQ ERR CP/R	=	0.000145
MAX REL ERR HH/RT	=	0.000375	TEMP =	200.	AVER REL ERR HH/RT	=	0.000056	REL LST SQ ERR HH/RT	=	0.000109
MAX REL ERR S/R	=	0.000117	TEMP =	200.	AVER REL ERR S/R	=	0.000024	REL LST SQ ERR S/R	=	0.000038
MAX REL ERR GH/RT	=	0.000267	TEMP =	200.	AVER REL ERR GH/RT	=	0.000040	REL LST SQ ERR GH/RT	=	0.000078
MAX ERR CP/R	=	0.001087	TEMP =	450.	AVER ERR CP/R	=	0.000354	LST SQ ERR CP/R	=	0.000444
MAX ERR HH/RT	=	0.000526	TEMP =	200.	AVER ERR HH/RT	=	0.000102	LST SQ ERR HH/RT	=	0.000167
MAX ERR S/R	=	0.000275	TEMP =	200.	AVER ERR S/R	=	0.000096	LST SQ ERR S/R	=	0.000122
MAX ERR GH/RT	=	0.000251	TEMP =	200.	AVER ERR GH/RT	=	0.000068	LST SQ ERR GH/RT	=	0.000094

Mo(cr) Molybdenum Crystal. JANAF Mar.1978. T range = 1000.000 to 2200.000 K

MAX REL ERR CP/R	=	0.000103	TEMP =	1200.	AVER REL ERR CP/R	=	0.000040	REL LST SQ ERR CP/R	=	0.000051
MAX REL ERR HH/RT	=	0.000036	TEMP =	1200.	AVER REL ERR HH/RT	=	0.000011	REL LST SQ ERR HH/RT	=	0.000015
MAX REL ERR S/R	=	0.000027	TEMP =	1200.	AVER REL ERR S/R	=	0.000014	REL LST SQ ERR S/R	=	0.000015
MAX REL ERR GH/RT	=	0.000032	TEMP =	1100.	AVER REL ERR GH/RT	=	0.000017	REL LST SQ ERR GH/RT	=	0.000018
MAX ERR CP/R	=	0.000366	TEMP =	1200.	AVER ERR CP/R	=	0.000156	LST SQ ERR CP/R	=	0.000196
MAX ERR HH/RT	=	0.000105	TEMP =	1200.	AVER ERR HH/RT	=	0.000033	LST SQ ERR HH/RT	=	0.000044
MAX ERR S/R	=	0.000214	TEMP =	1200.	AVER ERR S/R	=	0.000116	LST SQ ERR S/R	=	0.000125
MAX ERR GH/RT	=	0.000149	TEMP =	1100.	AVER ERR GH/RT	=	0.000096	LST SQ ERR GH/RT	=	0.000099

Mo(cr) Molybdenum Crystal. JANAF Mar.1978. T range = 2200.000 to 2896.000 K

MAX REL ERR CP/R	=	0.002528	TEMP =	2800.	AVER REL ERR CP/R	=	0.000880	REL LST SQ ERR CP/R	=	0.001173
MAX REL ERR HH/RT	=	0.000068	TEMP =	2700.	AVER REL ERR HH/RT	=	0.000034	REL LST SQ ERR HH/RT	=	0.000041
MAX REL ERR S/R	=	0.000023	TEMP =	2700.	AVER REL ERR S/R	=	0.000012	REL LST SQ ERR S/R	=	0.000014
MAX REL ERR GH/RT	=	0.000019	TEMP =	2500.	AVER REL ERR GH/RT	=	0.000011	REL LST SQ ERR GH/RT	=	0.000012
MAX ERR CP/R	=	0.015682	TEMP =	2800.	AVER ERR CP/R	=	0.005188	LST SQ ERR CP/R	=	0.007067
MAX ERR HH/RT	=	0.000256	TEMP =	2700.	AVER ERR HH/RT	=	0.000129	LST SQ ERR HH/RT	=	0.000155
MAX ERR S/R	=	0.000264	TEMP =	2700.	AVER ERR S/R	=	0.000137	LST SQ ERR S/R	=	0.000160
MAX ERR GH/RT	=	0.000138	TEMP =	2500.	AVER ERR GH/RT	=	0.000080	LST SQ ERR GH/RT	=	0.000089

TABLE X. - Continued.

N2 Nitrogen. GLUSHKO ET.AL. v1, pt2, p207, 1978. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000056	TEMP =	500.	AVER REL ERR CP/R	=	0.000017	REL LST SQ ERR CP/R	=	0.000024
MAX REL ERR HH/RT	=	0.000043	TEMP =	200.	AVER REL ERR HH/RT	=	0.000013	REL LST SQ ERR HH/RT	=	0.000017
MAX REL ERR S/R	=	0.000004	TEMP =	200.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000002
MAX REL ERR GH/RT	=	0.000014	TEMP =	200.	AVER REL ERR GH/RT	=	0.000004	REL LST SQ ERR GH/RT	=	0.000005
MAX ERR CP/R	=	0.000198	TEMP =	500.	AVER ERR CP/R	=	0.000063	LST SQ ERR CP/R	=	0.000086
MAX ERR HH/RT	=	0.000151	TEMP =	200.	AVER ERR HH/RT	=	0.000044	LST SQ ERR HH/RT	=	0.000061
MAX ERR S/R	=	0.000096	TEMP =	200.	AVER ERR S/R	=	0.000035	LST SQ ERR S/R	=	0.000043
MAX ERR GH/RT	=	0.000247	TEMP =	200.	AVER ERR GH/RT	=	0.000075	LST SQ ERR GH/RT	=	0.000095

N2 Nitrogen. GLUSHKO ET.AL. v1, pt2, p207, 1978. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000025	TEMP =	1200.	AVER REL ERR CP/R	=	0.000009	REL LST SQ ERR CP/R	=	0.000011
MAX REL ERR HH/RT	=	0.000017	TEMP =	1100.	AVER REL ERR HH/RT	=	0.000003	REL LST SQ ERR HH/RT	=	0.000004
MAX REL ERR S/R	=	0.000002	TEMP =	1200.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000001
MAX REL ERR GH/RT	=	0.000004	TEMP =	1200.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.000100	TEMP =	1200.	AVER ERR CP/R	=	0.000039	LST SQ ERR CP/R	=	0.000047
MAX ERR HH/RT	=	0.000061	TEMP =	1100.	AVER ERR HH/RT	=	0.000011	LST SQ ERR HH/RT	=	0.000015
MAX ERR S/R	=	0.000068	TEMP =	1200.	AVER ERR S/R	=	0.000029	LST SQ ERR S/R	=	0.000033
MAX ERR GH/RT	=	0.000091	TEMP =	1200.	AVER ERR GH/RT	=	0.000034	LST SQ ERR GH/RT	=	0.000039

N2 Nitrogen. GLUSHKO ET.AL. v1, pt2, p207, 1978. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.002336	TEMP =	20000.	AVER REL ERR CP/R	=	0.000893	REL LST SQ ERR CP/R	=	0.001038
MAX REL ERR HH/RT	=	0.000210	TEMP =	12000.	AVER REL ERR HH/RT	=	0.000076	REL LST SQ ERR HH/RT	=	0.000092
MAX REL ERR S/R	=	0.000032	TEMP =	12000.	AVER REL ERR S/R	=	0.000011	REL LST SQ ERR S/R	=	0.000014
MAX REL ERR GH/RT	=	0.000012	TEMP =	20000.	AVER REL ERR GH/RT	=	0.000005	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.016949	TEMP =	20000.	AVER ERR CP/R	=	0.005769	LST SQ ERR CP/R	=	0.007080
MAX ERR HH/RT	=	0.001013	TEMP =	12000.	AVER ERR HH/RT	=	0.000372	LST SQ ERR HH/RT	=	0.000448
MAX ERR S/R	=	0.001228	TEMP =	12000.	AVER ERR S/R	=	0.000421	LST SQ ERR S/R	=	0.000534
MAX ERR GH/RT	=	0.000454	TEMP =	20000.	AVER ERR GH/RT	=	0.000183	LST SQ ERR GH/RT	=	0.000219

Na(cr) Sodium Cubic Crystal. CODATA 1989, p254. T range = 200.000 to 371.010 K

MAX REL ERR CP/R	=	0.000942	TEMP =	300.	AVER REL ERR CP/R	=	0.000283	REL LST SQ ERR CP/R	=	0.000476
MAX REL ERR HH/RT	=	0.001032	TEMP =	371.	AVER REL ERR HH/RT	=	0.000337	REL LST SQ ERR HH/RT	=	0.000534
MAX REL ERR S/R	=	0.000490	TEMP =	200.	AVER REL ERR S/R	=	0.000233	REL LST SQ ERR S/R	=	0.000329
MAX REL ERR GH/RT	=	0.001165	TEMP =	200.	AVER REL ERR GH/RT	=	0.000311	REL LST SQ ERR GH/RT	=	0.000583
MAX ERR CP/R	=	0.003200	TEMP =	300.	AVER ERR CP/R	=	0.000971	LST SQ ERR CP/R	=	0.001621
MAX ERR HH/RT	=	0.002881	TEMP =	371.	AVER ERR HH/RT	=	0.000905	LST SQ ERR HH/RT	=	0.001476
MAX ERR S/R	=	0.003044	TEMP =	371.	AVER ERR S/R	=	0.001364	LST SQ ERR S/R	=	0.001935
MAX ERR GH/RT	=	0.003017	TEMP =	200.	AVER ERR GH/RT	=	0.000829	LST SQ ERR GH/RT	=	0.001512

Na(l) Sodium Liquid. CODATA 1989, p254. T range = 371.010 to 2300.000 K

MAX REL ERR CP/R	=	0.001067	TEMP =	500.	AVER REL ERR CP/R	=	0.000209	REL LST SQ ERR CP/R	=	0.000343
MAX REL ERR HH/RT	=	0.000793	TEMP =	371.	AVER REL ERR HH/RT	=	0.000145	REL LST SQ ERR HH/RT	=	0.000251
MAX REL ERR S/R	=	0.000391	TEMP =	371.	AVER REL ERR S/R	=	0.000108	REL LST SQ ERR S/R	=	0.000146
MAX REL ERR GH/RT	=	0.000197	TEMP =	600.	AVER REL ERR GH/RT	=	0.000119	REL LST SQ ERR GH/RT	=	0.000125
MAX ERR CP/R	=	0.003933	TEMP =	500.	AVER ERR CP/R	=	0.000769	LST SQ ERR CP/R	=	0.001258
MAX ERR HH/RT	=	0.002881	TEMP =	371.	AVER ERR HH/RT	=	0.000532	LST SQ ERR HH/RT	=	0.000916
MAX ERR S/R	=	0.003044	TEMP =	371.	AVER ERR S/R	=	0.001107	LST SQ ERR S/R	=	0.001314
MAX ERR GH/RT	=	0.001211	TEMP =	800.	AVER ERR GH/RT	=	0.000955	LST SQ ERR GH/RT	=	0.000986

Nb(cr) Niobium Crystal. JANAF, Dec. 1973. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000114	TEMP =	400.	AVER REL ERR CP/R	=	0.000031	REL LST SQ ERR CP/R	=	0.000045
MAX REL ERR HH/RT	=	0.000176	TEMP =	200.	AVER REL ERR HH/RT	=	0.000031	REL LST SQ ERR HH/RT	=	0.000054
MAX REL ERR S/R	=	0.000024	TEMP =	250.	AVER REL ERR S/R	=	0.000007	REL LST SQ ERR S/R	=	0.000011
MAX REL ERR GH/RT	=	0.000197	TEMP =	200.	AVER REL ERR GH/RT	=	0.000037	REL LST SQ ERR GH/RT	=	0.000063
MAX ERR CP/R	=	0.000349	TEMP =	400.	AVER ERR CP/R	=	0.000097	LST SQ ERR CP/R	=	0.000137
MAX ERR HH/RT	=	0.000305	TEMP =	200.	AVER ERR HH/RT	=	0.000067	LST SQ ERR HH/RT	=	0.000103
MAX ERR S/R	=	0.000096	TEMP =	300.	AVER ERR S/R	=	0.000038	LST SQ ERR S/R	=	0.000054
MAX ERR GH/RT	=	0.000296	TEMP =	200.	AVER ERR GH/RT	=	0.000089	LST SQ ERR GH/RT	=	0.000121

Nb(cr) Niobium Crystal. JANAF, Dec. 1973. T range = 1000.000 to 2000.000 K

MAX REL ERR CP/R	=	0.000036	TEMP =	1700.	AVER REL ERR CP/R	=	0.000018	REL LST SQ ERR CP/R	=	0.000023
MAX REL ERR HH/RT	=	0.000022	TEMP =	1200.	AVER REL ERR HH/RT	=	0.000005	REL LST SQ ERR HH/RT	=	0.000008
MAX REL ERR S/R	=	0.000008	TEMP =	1500.	AVER REL ERR S/R	=	0.000004	REL LST SQ ERR S/R	=	0.000005
MAX REL ERR GH/RT	=	0.000018	TEMP =	1200.	AVER REL ERR GH/RT	=	0.000008	REL LST SQ ERR GH/RT	=	0.000009
MAX ERR CP/R	=	0.000137	TEMP =	1700.	AVER ERR CP/R	=	0.000065	LST SQ ERR CP/R	=	0.000082
MAX ERR HH/RT	=	0.000065	TEMP =	1200.	AVER ERR HH/RT	=	0.000016	LST SQ ERR HH/RT	=	0.000024
MAX ERR S/R	=	0.000081	TEMP =	1500.	AVER ERR S/R	=	0.000040	LST SQ ERR S/R	=	0.000044
MAX ERR GH/RT	=	0.000107	TEMP =	1200.	AVER ERR GH/RT	=	0.000048	LST SQ ERR GH/RT	=	0.000054

Nb(cr) Niobium Crystal. JANAF, Dec. 1973. T range = 2000.000 to 2750.000 K

MAX REL ERR CP/R	=	0.000636	TEMP =	2700.	AVER REL ERR CP/R	=	0.000203	REL LST SQ ERR CP/R	=	0.000289
MAX REL ERR HH/RT	=	0.000023	TEMP =	2600.	AVER REL ERR HH/RT	=	0.000007	REL LST SQ ERR HH/RT	=	0.000009
MAX REL ERR S/R	=	0.000009	TEMP =	2600.	AVER REL ERR S/R	=	0.000004	REL LST SQ ERR S/R	=	0.000005
MAX REL ERR GH/RT	=	0.000011	TEMP =	2100.	AVER REL ERR GH/RT	=	0.000005	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.003235	TEMP =	2700.	AVER ERR CP/R	=	0.000988	LST SQ ERR CP/R	=	0.001441
MAX ERR HH/RT	=	0.000081	TEMP =	2600.	AVER ERR HH/RT	=	0.000023	LST SQ ERR HH/RT	=	0.000033
MAX ERR S/R	=	0.000105	TEMP =	2600.	AVER ERR S/R	=	0.000042	LST SQ ERR S/R	=	0.000053
MAX ERR GH/RT	=	0.000087	TEMP =	2100.	AVER ERR GH/RT	=	0.000036	LST SQ ERR GH/RT	=	0.000045

TABLE X. - Continued.

Ne — Neon. NSRDS-NBS 35, 1971. Temperature cutoff. — T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.002585	TEMP =	17500.	AVER REL ERR CP/R	=	0.000386	REL LST SQ ERR CP/R	=	0.000630
MAX REL ERR HH/RT	=	0.000465	TEMP =	19000.	AVER REL ERR HH/RT	=	0.000083	REL LST SQ ERR HH/RT	=	0.000161
MAX REL ERR S/R	=	0.000046	TEMP =	19500.	AVER REL ERR S/R	=	0.000009	REL LST SQ ERR S/R	=	0.000016
MAX REL ERR GH/RT	=	0.000006	TEMP =	20000.	AVER REL ERR GH/RT	=	0.000002	REL LST SQ ERR GH/RT	=	0.000002
MAX ERR CP/R	=	0.006625	TEMP =	17500.	AVER ERR CP/R	=	0.000983	LST SQ ERR CP/R	=	0.001612
MAX ERR HH/RT	=	0.001167	TEMP =	19000.	AVER ERR HH/RT	=	0.000208	LST SQ ERR HH/RT	=	0.000404
MAX ERR S/R	=	0.001288	TEMP =	19500.	AVER ERR S/R	=	0.000242	LST SQ ERR S/R	=	0.000447
MAX ERR GH/RT	=	0.000163	TEMP =	20000.	AVER ERR GH/RT	=	0.000044	LST SQ ERR GH/RT	=	0.000058

Ni(cr) — Nickel Crystal below lambda trans 631K. JANAF Dec.1976. — T range = 200.000 to 400.000 K

MAX REL ERR CP/R	=	0.000661	TEMP =	300.	AVER REL ERR CP/R	=	0.000141	REL LST SQ ERR CP/R	=	0.000275
MAX REL ERR HH/RT	=	0.000382	TEMP =	200.	AVER REL ERR HH/RT	=	0.000161	REL LST SQ ERR HH/RT	=	0.000224
MAX REL ERR S/R	=	0.000144	TEMP =	350.	AVER REL ERR S/R	=	0.000041	REL LST SQ ERR S/R	=	0.000067
MAX REL ERR GH/RT	=	0.000372	TEMP =	200.	AVER REL ERR GH/RT	=	0.000123	REL LST SQ ERR GH/RT	=	0.000183
MAX ERR CP/R	=	0.002069	TEMP =	300.	AVER ERR CP/R	=	0.000437	LST SQ ERR CP/R	=	0.000859
MAX ERR HH/RT	=	0.000692	TEMP =	350.	AVER ERR HH/RT	=	0.000284	LST SQ ERR HH/RT	=	0.000393
MAX ERR S/R	=	0.000592	TEMP =	350.	AVER ERR S/R	=	0.000147	LST SQ ERR S/R	=	0.000255
MAX ERR GH/RT	=	0.000367	TEMP =	200.	AVER ERR GH/RT	=	0.000155	LST SQ ERR GH/RT	=	0.000208

Ni(cr) — Nickel Crystal below lambda trans 631K. JANAF Dec.1976. — T range = 400.000 to 631.000 K

MAX REL ERR CP/R	=	0.001505	TEMP =	450.	AVER REL ERR CP/R	=	0.000458	REL LST SQ ERR CP/R	=	0.000736
MAX REL ERR HH/RT	=	0.001880	TEMP =	631.	AVER REL ERR HH/RT	=	0.001008	REL LST SQ ERR HH/RT	=	0.001209
MAX REL ERR S/R	=	0.001053	TEMP =	631.	AVER REL ERR S/R	=	0.000596	REL LST SQ ERR S/R	=	0.000689
MAX REL ERR GH/RT	=	0.000369	TEMP =	631.	AVER REL ERR GH/RT	=	0.000235	REL LST SQ ERR GH/RT	=	0.000266
MAX ERR CP/R	=	0.005363	TEMP =	450.	AVER ERR CP/R	=	0.001726	LST SQ ERR CP/R	=	0.002715
MAX ERR HH/RT	=	0.005350	TEMP =	631.	AVER ERR HH/RT	=	0.002652	LST SQ ERR HH/RT	=	0.003197
MAX ERR S/R	=	0.006618	TEMP =	631.	AVER ERR S/R	=	0.003381	LST SQ ERR S/R	=	0.003945
MAX ERR GH/RT	=	0.001268	TEMP =	631.	AVER ERR GH/RT	=	0.000734	LST SQ ERR GH/RT	=	0.000853

Ni(cr) — Nickel Crystal above lambda trans 631K. JANAF Dec.1976. — T range = 631.000 to 1200.000 K

MAX REL ERR CP/R	=	0.007181	TEMP =	700.	AVER REL ERR CP/R	=	0.002420	REL LST SQ ERR CP/R	=	0.003432
MAX REL ERR HH/RT	=	0.008451	TEMP =	700.	AVER REL ERR HH/RT	=	0.004102	REL LST SQ ERR HH/RT	=	0.004601
MAX REL ERR S/R	=	0.004226	TEMP =	700.	AVER REL ERR S/R	=	0.002589	REL LST SQ ERR S/R	=	0.002741
MAX REL ERR GH/RT	=	0.001988	TEMP =	1200.	AVER REL ERR GH/RT	=	0.001467	REL LST SQ ERR GH/RT	=	0.001575
MAX ERR CP/R	=	0.026596	TEMP =	700.	AVER ERR CP/R	=	0.009129	LST SQ ERR CP/R	=	0.012823
MAX ERR HH/RT	=	0.024872	TEMP =	700.	AVER ERR HH/RT	=	0.012609	LST SQ ERR HH/RT	=	0.013969
MAX ERR S/R	=	0.028246	TEMP =	700.	AVER ERR S/R	=	0.019520	LST SQ ERR S/R	=	0.020434
MAX ERR GH/RT	=	0.010794	TEMP =	1200.	AVER ERR GH/RT	=	0.006911	LST SQ ERR GH/RT	=	0.007660

Ni(cr) — Nickel Crystal above lambda trans 631K. JANAF Dec.1976. — T range = 1200.000 to 1728.000 K

MAX REL ERR CP/R	=	0.002648	TEMP =	1300.	AVER REL ERR CP/R	=	0.000996	REL LST SQ ERR CP/R	=	0.001271
MAX REL ERR HH/RT	=	0.002298	TEMP =	1200.	AVER REL ERR HH/RT	=	0.001451	REL LST SQ ERR HH/RT	=	0.001522
MAX REL ERR S/R	=	0.002106	TEMP =	1200.	AVER REL ERR S/R	=	0.001776	REL LST SQ ERR S/R	=	0.001786
MAX REL ERR GH/RT	=	0.001994	TEMP =	1300.	AVER REL ERR GH/RT	=	0.001955	REL LST SQ ERR GH/RT	=	0.001956
MAX ERR CP/R	=	0.010992	TEMP =	1300.	AVER ERR CP/R	=	0.004294	LST SQ ERR CP/R	=	0.005383
MAX ERR HH/RT	=	0.007630	TEMP =	1200.	AVER ERR HH/RT	=	0.005015	LST SQ ERR HH/RT	=	0.005213
MAX ERR S/R	=	0.018424	TEMP =	1200.	AVER ERR S/R	=	0.017015	LST SQ ERR S/R	=	0.017032
MAX ERR GH/RT	=	0.012734	TEMP =	1700.	AVER ERR GH/RT	=	0.012000	LST SQ ERR GH/RT	=	0.012020

O2 — Oxygen. Gurvich et al. v1, pt 2, p9, 1989. — T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000198	TEMP =	250.	AVER REL ERR CP/R	=	0.000094	REL LST SQ ERR CP/R	=	0.000113
MAX REL ERR HH/RT	=	0.000074	TEMP =	300.	AVER REL ERR HH/RT	=	0.000015	REL LST SQ ERR HH/RT	=	0.000026
MAX REL ERR S/R	=	0.000015	TEMP =	200.	AVER REL ERR S/R	=	0.000004	REL LST SQ ERR S/R	=	0.000006
MAX REL ERR GH/RT	=	0.000012	TEMP =	200.	AVER REL ERR GH/RT	=	0.000004	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.000695	TEMP =	250.	AVER ERR CP/R	=	0.000354	LST SQ ERR CP/R	=	0.000420
MAX ERR HH/RT	=	0.000257	TEMP =	300.	AVER ERR HH/RT	=	0.000054	LST SQ ERR HH/RT	=	0.000090
MAX ERR S/R	=	0.000354	TEMP =	200.	AVER ERR S/R	=	0.000087	LST SQ ERR S/R	=	0.000136
MAX ERR GH/RT	=	0.000232	TEMP =	200.	AVER ERR GH/RT	=	0.000084	LST SQ ERR GH/RT	=	0.000117

O2 — Oxygen. Gurvich et al. v1, pt 2, p9, 1989. — T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000537	TEMP =	1100.	AVER REL ERR CP/R	=	0.000156	REL LST SQ ERR CP/R	=	0.000189
MAX REL ERR HH/RT	=	0.000069	TEMP =	1300.	AVER REL ERR HH/RT	=	0.000018	REL LST SQ ERR HH/RT	=	0.000024
MAX REL ERR S/R	=	0.000012	TEMP =	1300.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000005	TEMP =	3300.	AVER REL ERR GH/RT	=	0.000003	REL LST SQ ERR GH/RT	=	0.000003
MAX ERR CP/R	=	0.002282	TEMP =	1100.	AVER ERR CP/R	=	0.000742	LST SQ ERR CP/R	=	0.000878
MAX ERR HH/RT	=	0.000268	TEMP =	1300.	AVER ERR HH/RT	=	0.000075	LST SQ ERR HH/RT	=	0.000096
MAX ERR S/R	=	0.000366	TEMP =	1300.	AVER ERR S/R	=	0.000091	LST SQ ERR S/R	=	0.000124
MAX ERR GH/RT	=	0.000145	TEMP =	3300.	AVER ERR GH/RT	=	0.000076	LST SQ ERR GH/RT	=	0.000082

O2 — Oxygen. Gurvich et al. v1, pt 2, p9, 1989. — T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.000365	TEMP =	6400.	AVER REL ERR CP/R	=	0.000156	REL LST SQ ERR CP/R	=	0.000175
MAX REL ERR HH/RT	=	0.000038	TEMP =	7000.	AVER REL ERR HH/RT	=	0.000012	REL LST SQ ERR HH/RT	=	0.000015
MAX REL ERR S/R	=	0.000005	TEMP =	7000.	AVER REL ERR S/R	=	0.000002	REL LST SQ ERR S/R	=	0.000002
MAX REL ERR GH/RT	=	0.000003	TEMP =	8600.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.001940	TEMP =	6400.	AVER ERR CP/R	=	0.000730	LST SQ ERR CP/R	=	0.000843
MAX ERR HH/RT	=	0.000183	TEMP =	7000.	AVER ERR HH/RT	=	0.000055	LST SQ ERR HH/RT	=	0.000074
MAX ERR S/R	=	0.000178	TEMP =	7000.	AVER ERR S/R	=	0.000063	LST SQ ERR S/R	=	0.000078
MAX ERR GH/RT	=	0.000094	TEMP =	8600.	AVER ERR GH/RT	=	0.000042	LST SQ ERR GH/RT	=	0.000050

TABLE X. - Continued.

P(cr) Phosphorus Crystal(White). TPIS 1989. JANAF June,1961. T range = 195.400 to 317.300 K

MAX REL ERR CP/R	=	0.000617	TEMP =	200.	AVER REL ERR CP/R	=	0.000154	REL LST SQ ERR CP/R	=	0.000221
MAX REL ERR HH/RT	=	0.000259	TEMP =	210.	AVER REL ERR HH/RT	=	0.000107	REL LST SQ ERR HH/RT	=	0.000131
MAX REL ERR S/R	=	0.000087	TEMP =	290.	AVER REL ERR S/R	=	0.000059	REL LST SQ ERR S/R	=	0.000064
MAX REL ERR GH/RT	=	0.000143	TEMP =	195.	AVER REL ERR GH/RT	=	0.000056	REL LST SQ ERR GH/RT	=	0.000073
MAX ERR CP/R	=	0.001564	TEMP =	200.	AVER ERR CP/R	=	0.000407	LST SQ ERR CP/R	=	0.000568
MAX ERR HH/RT	=	0.000509	TEMP =	230.	AVER ERR HH/RT	=	0.000217	LST SQ ERR HH/RT	=	0.000261
MAX ERR S/R	=	0.000424	TEMP =	290.	AVER ERR S/R	=	0.000263	LST SQ ERR S/R	=	0.000288
MAX ERR GH/RT	=	0.000289	TEMP =	210.	AVER ERR GH/RT	=	0.000130	LST SQ ERR GH/RT	=	0.000166

Pb(cr) Lead Cubic. TPIS 1991, v1, p400, v2, p337. T range = 200.000 to 600.650 K

MAX REL ERR CP/R	=	0.000458	TEMP =	400.	AVER REL ERR CP/R	=	0.000175	REL LST SQ ERR CP/R	=	0.000242
MAX REL ERR HH/RT	=	0.001020	TEMP =	200.	AVER REL ERR HH/RT	=	0.000132	REL LST SQ ERR HH/RT	=	0.000326
MAX REL ERR S/R	=	0.000330	TEMP =	200.	AVER REL ERR S/R	=	0.000049	REL LST SQ ERR S/R	=	0.000106
MAX REL ERR GH/RT	=	0.001210	TEMP =	200.	AVER REL ERR GH/RT	=	0.000130	REL LST SQ ERR GH/RT	=	0.000383
MAX ERR CP/R	=	0.001532	TEMP =	400.	AVER ERR CP/R	=	0.000590	LST SQ ERR CP/R	=	0.000814
MAX ERR HH/RT	=	0.002630	TEMP =	200.	AVER ERR HH/RT	=	0.000352	LST SQ ERR HH/RT	=	0.000843
MAX ERR S/R	=	0.002159	TEMP =	200.	AVER ERR S/R	=	0.000361	LST SQ ERR S/R	=	0.000707
MAX ERR GH/RT	=	0.004790	TEMP =	200.	AVER ERR GH/RT	=	0.000535	LST SQ ERR GH/RT	=	0.001516

Rb(cr) Rubidium Cubic Crystal. CODATA 1989. p260. JANAF 12/83. T range = 100.000 to 312.470 K

MAX REL ERR CP/R	=	0.000699	TEMP =	300.	AVER REL ERR CP/R	=	0.000214	REL LST SQ ERR CP/R	=	0.000326
MAX REL ERR HH/RT	=	0.001181	TEMP =	100.	AVER REL ERR HH/RT	=	0.000424	REL LST SQ ERR HH/RT	=	0.000608
MAX REL ERR S/R	=	0.000767	TEMP =	200.	AVER REL ERR S/R	=	0.000346	REL LST SQ ERR S/R	=	0.000486
MAX REL ERR GH/RT	=	0.002037	TEMP =	100.	AVER REL ERR GH/RT	=	0.000710	REL LST SQ ERR GH/RT	=	0.001079
MAX ERR CP/R	=	0.002624	TEMP =	300.	AVER ERR CP/R	=	0.000775	LST SQ ERR CP/R	=	0.001201
MAX ERR HH/RT	=	0.002854	TEMP =	100.	AVER ERR HH/RT	=	0.001126	LST SQ ERR HH/RT	=	0.001575
MAX ERR S/R	=	0.006021	TEMP =	200.	AVER ERR S/R	=	0.002561	LST SQ ERR S/R	=	0.003629
MAX ERR GH/RT	=	0.007879	TEMP =	200.	AVER ERR GH/RT	=	0.003043	LST SQ ERR GH/RT	=	0.004438

Rb(l) Rubidium Liquid. CODATA 1989. p260. T range = 312.470 to 1000.000 K

MAX REL ERR CP/R	=	0.000056	TEMP =	400.	AVER REL ERR CP/R	=	0.000017	REL LST SQ ERR CP/R	=	0.000024
MAX REL ERR HH/RT	=	0.000029	TEMP =	500.	AVER REL ERR HH/RT	=	0.000015	REL LST SQ ERR HH/RT	=	0.000017
MAX REL ERR S/R	=	0.000019	TEMP =	312.	AVER REL ERR S/R	=	0.000008	REL LST SQ ERR S/R	=	0.000009
MAX REL ERR GH/RT	=	0.000020	TEMP =	400.	AVER REL ERR GH/RT	=	0.000011	REL LST SQ ERR GH/RT	=	0.000013
MAX ERR CP/R	=	0.000207	TEMP =	400.	AVER ERR CP/R	=	0.000063	LST SQ ERR CP/R	=	0.000090
MAX ERR HH/RT	=	0.000112	TEMP =	500.	AVER ERR HH/RT	=	0.000059	LST SQ ERR HH/RT	=	0.000067
MAX ERR S/R	=	0.000199	TEMP =	312.	AVER ERR S/R	=	0.000090	LST SQ ERR S/R	=	0.000104
MAX ERR GH/RT	=	0.000159	TEMP =	600.	AVER ERR GH/RT	=	0.000091	LST SQ ERR GH/RT	=	0.000106

Rb(l) Rubidium Liquid. CODATA 1989. p260. T range = 1000.000 to 2100.000 K

MAX REL ERR CP/R	=	0.000019	TEMP =	1400.	AVER REL ERR CP/R	=	0.000007	REL LST SQ ERR CP/R	=	0.000008
MAX REL ERR HH/RT	=	0.000013	TEMP =	1400.	AVER REL ERR HH/RT	=	0.000007	REL LST SQ ERR HH/RT	=	0.000008
MAX REL ERR S/R	=	0.000007	TEMP =	1100.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000010	TEMP =	1800.	AVER REL ERR GH/RT	=	0.000005	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.000084	TEMP =	1400.	AVER ERR CP/R	=	0.000030	LST SQ ERR CP/R	=	0.000037
MAX ERR HH/RT	=	0.000049	TEMP =	1400.	AVER ERR HH/RT	=	0.000027	LST SQ ERR HH/RT	=	0.000030
MAX ERR S/R	=	0.000101	TEMP =	2000.	AVER ERR S/R	=	0.000045	LST SQ ERR S/R	=	0.000058
MAX ERR GH/RT	=	0.000127	TEMP =	1800.	AVER ERR GH/RT	=	0.000057	LST SQ ERR GH/RT	=	0.000067

S(a) Sulfur Alpha Crystal. TPIS 1989. T range = 200.000 to 368.300 K

MAX REL ERR CP/R	=	0.000015	TEMP =	300.	AVER REL ERR CP/R	=	0.000005	REL LST SQ ERR CP/R	=	0.000008
MAX REL ERR HH/RT	=	0.000287	TEMP =	200.	AVER REL ERR HH/RT	=	0.000157	REL LST SQ ERR HH/RT	=	0.000191
MAX REL ERR S/R	=	0.000163	TEMP =	200.	AVER REL ERR S/R	=	0.000050	REL LST SQ ERR S/R	=	0.000082
MAX REL ERR GH/RT	=	0.000600	TEMP =	200.	AVER REL ERR GH/RT	=	0.000238	REL LST SQ ERR GH/RT	=	0.000326
MAX ERR CP/R	=	0.000040	TEMP =	300.	AVER ERR CP/R	=	0.000013	LST SQ ERR CP/R	=	0.000021
MAX ERR HH/RT	=	0.000403	TEMP =	200.	AVER ERR HH/RT	=	0.000259	LST SQ ERR HH/RT	=	0.000306
MAX ERR S/R	=	0.000464	TEMP =	200.	AVER ERR S/R	=	0.000153	LST SQ ERR S/R	=	0.000238
MAX ERR GH/RT	=	0.000866	TEMP =	200.	AVER ERR GH/RT	=	0.000412	LST SQ ERR GH/RT	=	0.000516

S(b) Sulfur Beta Crystal. TPIS 1989. T range = 368.300 to 388.360 K

MAX REL ERR CP/R	=	0.000004	TEMP =	388.	AVER REL ERR CP/R	=	0.000002	REL LST SQ ERR CP/R	=	0.000003
MAX REL ERR HH/RT	=	0.000245	TEMP =	388.	AVER REL ERR HH/RT	=	0.000180	REL LST SQ ERR HH/RT	=	0.000191
MAX REL ERR S/R	=	0.000019	TEMP =	368.	AVER REL ERR S/R	=	0.000010	REL LST SQ ERR S/R	=	0.000014
MAX REL ERR GH/RT	=	0.000207	TEMP =	388.	AVER REL ERR GH/RT	=	0.000170	REL LST SQ ERR GH/RT	=	0.000174
MAX ERR CP/R	=	0.000013	TEMP =	388.	AVER ERR CP/R	=	0.000007	LST SQ ERR CP/R	=	0.000010
MAX ERR HH/RT	=	0.000529	TEMP =	388.	AVER ERR HH/RT	=	0.000385	LST SQ ERR HH/RT	=	0.000411
MAX ERR S/R	=	0.000089	TEMP =	368.	AVER ERR S/R	=	0.000048	LST SQ ERR S/R	=	0.000063
MAX ERR GH/RT	=	0.000536	TEMP =	388.	AVER ERR GH/RT	=	0.000432	LST SQ ERR GH/RT	=	0.000445

Si(cr) Silicon Cubic. TPIS 1991, v1, p237, v2, p220. T range = 200.000 to 298.150 K

MAX REL ERR CP/R	=	0.001154	TEMP =	250.	AVER REL ERR CP/R	=	0.000514	REL LST SQ ERR CP/R	=	0.000703
MAX REL ERR HH/RT	=	0.006458	TEMP =	200.	AVER REL ERR HH/RT	=	0.002554	REL LST SQ ERR HH/RT	=	0.003793
MAX REL ERR S/R	=	0.002271	TEMP =	200.	AVER REL ERR S/R	=	0.000861	REL LST SQ ERR S/R	=	0.001323
MAX REL ERR GH/RT	=	0.004528	TEMP =	200.	AVER REL ERR GH/RT	=	0.001846	REL LST SQ ERR GH/RT	=	0.002679
MAX ERR CP/R	=	0.002516	TEMP =	250.	AVER ERR CP/R	=	0.001082	LST SQ ERR CP/R	=	0.001513
MAX ERR HH/RT	=	0.005604	TEMP =	200.	AVER ERR HH/RT	=	0.002313	LST SQ ERR HH/RT	=	0.003326
MAX ERR S/R	=	0.003184	TEMP =	200.	AVER ERR S/R	=	0.001254	LST SQ ERR S/R	=	0.001868
MAX ERR GH/RT	=	0.002419	TEMP =	200.	AVER ERR GH/RT	=	0.001059	LST SQ ERR GH/RT	=	0.001464

TABLE X. - Continued.

Si(cr) Silicon Cubic. TPIS 1991, v1, p237, v2, p220. T range = 298.150 to 1690.000 K

MAX REL ERR CP/R	=	0.000012	TEMP =	300.	AVER REL ERR CP/R	=	0.000002	REL LST SQ ERR CP/R	=	0.000003
MAX REL ERR HH/RT	=	0.000003	TEMP =	400.	AVER REL ERR HH/RT	=	0.000001	REL LST SQ ERR HH/RT	=	0.000001
MAX REL ERR S/R	=	0.000002	TEMP =	400.	AVER REL ERR S/R	=	0.000001	REL LST SQ ERR S/R	=	0.000001
MAX REL ERR GH/RT	=	0.000001	TEMP =	600.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.000028	TEMP =	300.	AVER ERR CP/R	=	0.000005	LST SQ ERR CP/R	=	0.000008
MAX ERR HH/RT	=	0.000004	TEMP =	400.	AVER ERR HH/RT	=	0.000001	LST SQ ERR HH/RT	=	0.000002
MAX ERR S/R	=	0.000006	TEMP =	500.	AVER ERR S/R	=	0.000002	LST SQ ERR S/R	=	0.000003
MAX ERR GH/RT	=	0.000003	TEMP =	900.	AVER ERR GH/RT	=	0.000002	LST SQ ERR GH/RT	=	0.000002

Sn(cr) Tin CrI,tetragonal. TPIS 1991, pt1, p350, pt2, p300. T range = 200.000 to 505.118 K

MAX REL ERR CP/R	=	0.000098	TEMP =	500.	AVER REL ERR CP/R	=	0.000049	REL LST SQ ERR CP/R	=	0.000061
MAX REL ERR HH/RT	=	0.000582	TEMP =	200.	AVER REL ERR HH/RT	=	0.000150	REL LST SQ ERR HH/RT	=	0.000229
MAX REL ERR S/R	=	0.000323	TEMP =	200.	AVER REL ERR S/R	=	0.000045	REL LST SQ ERR S/R	=	0.000114
MAX REL ERR GH/RT	=	0.001093	TEMP =	200.	AVER REL ERR GH/RT	=	0.000180	REL LST SQ ERR GH/RT	=	0.000391
MAX ERR CP/R	=	0.000364	TEMP =	500.	AVER ERR CP/R	=	0.000172	LST SQ ERR CP/R	=	0.000216
MAX ERR HH/RT	=	0.001309	TEMP =	200.	AVER ERR HH/RT	=	0.000374	LST SQ ERR HH/RT	=	0.000535
MAX ERR S/R	=	0.001578	TEMP =	200.	AVER ERR S/R	=	0.000231	LST SQ ERR S/R	=	0.000559
MAX ERR GH/RT	=	0.002887	TEMP =	200.	AVER ERR GH/RT	=	0.000547	LST SQ ERR GH/RT	=	0.001048

Sr(a) Strontium Alpha Crystal. Alcock, JPCRD 1992. T range = 100.000 to 298.150 K

MAX REL ERR CP/R	=	0.000052	TEMP =	260.	AVER REL ERR CP/R	=	0.000016	REL LST SQ ERR CP/R	=	0.000021
MAX REL ERR HH/RT	=	0.000020	TEMP =	120.	AVER REL ERR HH/RT	=	0.000012	REL LST SQ ERR HH/RT	=	0.000013
MAX REL ERR S/R	=	0.000005	TEMP =	280.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000003
MAX REL ERR GH/RT	=	0.000022	TEMP =	100.	AVER REL ERR GH/RT	=	0.000006	REL LST SQ ERR GH/RT	=	0.000009
MAX ERR CP/R	=	0.000166	TEMP =	260.	AVER ERR CP/R	=	0.000049	LST SQ ERR CP/R	=	0.000066
MAX ERR HH/RT	=	0.000039	TEMP =	120.	AVER ERR HH/RT	=	0.000027	LST SQ ERR HH/RT	=	0.000029
MAX ERR S/R	=	0.000034	TEMP =	280.	AVER ERR S/R	=	0.000015	LST SQ ERR S/R	=	0.000018
MAX ERR GH/RT	=	0.000032	TEMP =	100.	AVER ERR GH/RT	=	0.000013	LST SQ ERR GH/RT	=	0.000016

Sr(a) Strontium Alpha Crystal. Alcock, JPCRD 1992. T range = 298.150 to 820.000 K

MAX REL ERR CP/R	=	0.000476	TEMP =	300.	AVER REL ERR CP/R	=	0.000075	REL LST SQ ERR CP/R	=	0.000155
MAX REL ERR HH/RT	=	0.000010	TEMP =	350.	AVER REL ERR HH/RT	=	0.000004	REL LST SQ ERR HH/RT	=	0.000005
MAX REL ERR S/R	=	0.000004	TEMP =	350.	AVER REL ERR S/R	=	0.000002	REL LST SQ ERR S/R	=	0.000003
MAX REL ERR GH/RT	=	0.000002	TEMP =	600.	AVER REL ERR GH/RT	=	0.000001	REL LST SQ ERR GH/RT	=	0.000001
MAX ERR CP/R	=	0.001536	TEMP =	300.	AVER ERR CP/R	=	0.000247	LST SQ ERR CP/R	=	0.000501
MAX ERR HH/RT	=	0.000028	TEMP =	350.	AVER ERR HH/RT	=	0.000012	LST SQ ERR HH/RT	=	0.000016
MAX ERR S/R	=	0.000034	TEMP =	450.	AVER ERR S/R	=	0.000016	LST SQ ERR S/R	=	0.000020
MAX ERR GH/RT	=	0.000012	TEMP =	800.	AVER ERR GH/RT	=	0.000007	LST SQ ERR GH/RT	=	0.000009

Ta(cr) Tantalum Crystal. JANAF Dec. 1972. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.000591	TEMP =	250.	AVER REL ERR CP/R	=	0.000276	REL LST SQ ERR CP/R	=	0.000343
MAX REL ERR HH/RT	=	0.000264	TEMP =	200.	AVER REL ERR HH/RT	=	0.000057	REL LST SQ ERR HH/RT	=	0.000086
MAX REL ERR S/R	=	0.000137	TEMP =	200.	AVER REL ERR S/R	=	0.000025	REL LST SQ ERR S/R	=	0.000042
MAX REL ERR GH/RT	=	0.000019	TEMP =	250.	AVER REL ERR GH/RT	=	0.000007	REL LST SQ ERR GH/RT	=	0.000009
MAX ERR CP/R	=	0.001802	TEMP =	900.	AVER ERR CP/R	=	0.000878	LST SQ ERR CP/R	=	0.001094
MAX ERR HH/RT	=	0.000515	TEMP =	200.	AVER ERR HH/RT	=	0.000137	LST SQ ERR HH/RT	=	0.000188
MAX ERR S/R	=	0.000520	TEMP =	200.	AVER ERR S/R	=	0.000136	LST SQ ERR S/R	=	0.000197
MAX ERR GH/RT	=	0.000095	TEMP =	900.	AVER ERR GH/RT	=	0.000030	LST SQ ERR GH/RT	=	0.000037

Ta(cr) Tantalum Crystal. JANAF Dec. 1972. T range = 1000.000 to 2000.000 K

MAX REL ERR CP/R	=	0.000372	TEMP =	1800.	AVER REL ERR CP/R	=	0.000140	REL LST SQ ERR CP/R	=	0.000171
MAX REL ERR HH/RT	=	0.000038	TEMP =	1200.	AVER REL ERR HH/RT	=	0.000018	REL LST SQ ERR HH/RT	=	0.000021
MAX REL ERR S/R	=	0.000008	TEMP =	1900.	AVER REL ERR S/R	=	0.000004	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000024	TEMP =	1200.	AVER REL ERR GH/RT	=	0.000008	REL LST SQ ERR GH/RT	=	0.000011
MAX ERR CP/R	=	0.001346	TEMP =	1800.	AVER ERR CP/R	=	0.000499	LST SQ ERR CP/R	=	0.000614
MAX ERR HH/RT	=	0.000116	TEMP =	1200.	AVER ERR HH/RT	=	0.000057	LST SQ ERR HH/RT	=	0.000066
MAX ERR S/R	=	0.000086	TEMP =	1900.	AVER ERR S/R	=	0.000039	LST SQ ERR S/R	=	0.000045
MAX ERR GH/RT	=	0.000157	TEMP =	1200.	AVER ERR GH/RT	=	0.000056	LST SQ ERR GH/RT	=	0.000071

Ta(cr) Tantalum Crystal. JANAF Dec. 1972. T range = 2000.000 to 3258.000 K

MAX REL ERR CP/R	=	0.000058	TEMP =	2000.	AVER REL ERR CP/R	=	0.000010	REL LST SQ ERR CP/R	=	0.000018
MAX REL ERR HH/RT	=	0.000020	TEMP =	2000.	AVER REL ERR HH/RT	=	0.000004	REL LST SQ ERR HH/RT	=	0.000007
MAX REL ERR S/R	=	0.000009	TEMP =	2100.	AVER REL ERR S/R	=	0.000006	REL LST SQ ERR S/R	=	0.000007
MAX REL ERR GH/RT	=	0.000012	TEMP =	2100.	AVER REL ERR GH/RT	=	0.000007	REL LST SQ ERR GH/RT	=	0.000008
MAX ERR CP/R	=	0.000219	TEMP =	2000.	AVER ERR CP/R	=	0.000040	LST SQ ERR CP/R	=	0.000068
MAX ERR HH/RT	=	0.000065	TEMP =	2000.	AVER ERR HH/RT	=	0.000013	LST SQ ERR HH/RT	=	0.000022
MAX ERR S/R	=	0.000110	TEMP =	2400.	AVER ERR S/R	=	0.000074	LST SQ ERR S/R	=	0.000080
MAX ERR GH/RT	=	0.000105	TEMP =	3200.	AVER ERR GH/RT	=	0.000062	LST SQ ERR GH/RT	=	0.000070

Th(a) Thorium Alpha Crystal. CODATA 1989. p239. T range = 200.000 to 1650.000 K

MAX REL ERR CP/R	=	0.000137	TEMP =	500.	AVER REL ERR CP/R	=	0.000049	REL LST SQ ERR CP/R	=	0.000061
MAX REL ERR HH/RT	=	0.000111	TEMP =	200.	AVER REL ERR HH/RT	=	0.000023	REL LST SQ ERR HH/RT	=	0.000037
MAX REL ERR S/R	=	0.000187	TEMP =	200.	AVER REL ERR S/R	=	0.000017	REL LST SQ ERR S/R	=	0.000046
MAX REL ERR GH/RT	=	0.000440	TEMP =	200.	AVER REL ERR GH/RT	=	0.000038	REL LST SQ ERR GH/RT	=	0.000109
MAX ERR CP/R	=	0.000462	TEMP =	500.	AVER ERR CP/R	=	0.000181	LST SQ ERR CP/R	=	0.000219
MAX ERR HH/RT	=	0.000255	TEMP =	200.	AVER ERR HH/RT	=	0.000062	LST SQ ERR HH/RT	=	0.000093
MAX ERR S/R	=	0.000933	TEMP =	200.	AVER ERR S/R	=	0.000104	LST SQ ERR S/R	=	0.000237
MAX ERR GH/RT	=	0.001188	TEMP =	200.	AVER ERR GH/RT	=	0.000137	LST SQ ERR GH/RT	=	0.000303

TABLE X. - Continued.

Th(b) Thorium Beta Crystal. CODATA 1989. p239. T range = 1650.000 to 2023.000 K

MAX REL ERR CP/R	=	0.000005	TEMP =	1700.	AVER REL ERR CP/R	=	0.000002	REL LST SQ ERR CP/R	=	0.000003
MAX REL ERR HH/RT	=	0.000008	TEMP =	2023.	AVER REL ERR HH/RT	=	0.000005	REL LST SQ ERR HH/RT	=	0.000005
MAX REL ERR S/R	=	0.000007	TEMP =	2000.	AVER REL ERR S/R	=	0.000005	REL LST SQ ERR S/R	=	0.000005
MAX REL ERR GH/RT	=	0.000009	TEMP =	1650.	AVER REL ERR GH/RT	=	0.000006	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.000022	TEMP =	1700.	AVER ERR CP/R	=	0.000010	LST SQ ERR CP/R	=	0.000014
MAX ERR HH/RT	=	0.000033	TEMP =	2023.	AVER ERR HH/RT	=	0.000019	LST SQ ERR HH/RT	=	0.000022
MAX ERR S/R	=	0.000102	TEMP =	2000.	AVER ERR S/R	=	0.000061	LST SQ ERR S/R	=	0.000069
MAX ERR GH/RT	=	0.000077	TEMP =	1650.	AVER ERR GH/RT	=	0.000053	LST SQ ERR GH/RT	=	0.000056

Ti(a) Titanium Alpha Crystal. CODATA 1989, p230. T range = 200.000 to 900.000 K

MAX REL ERR CP/R	=	0.000527	TEMP =	500.	AVER REL ERR CP/R	=	0.000160	REL LST SQ ERR CP/R	=	0.000219
MAX REL ERR HH/RT	=	0.000832	TEMP =	200.	AVER REL ERR HH/RT	=	0.000155	REL LST SQ ERR HH/RT	=	0.000293
MAX REL ERR S/R	=	0.000615	TEMP =	200.	AVER REL ERR S/R	=	0.000118	REL LST SQ ERR S/R	=	0.000216
MAX REL ERR GH/RT	=	0.000310	TEMP =	200.	AVER REL ERR GH/RT	=	0.000088	REL LST SQ ERR GH/RT	=	0.000120
MAX ERR CP/R	=	0.001734	TEMP =	500.	AVER ERR CP/R	=	0.000524	LST SQ ERR CP/R	=	0.000722
MAX ERR HH/RT	=	0.001240	TEMP =	200.	AVER ERR HH/RT	=	0.000286	LST SQ ERR HH/RT	=	0.000465
MAX ERR S/R	=	0.001568	TEMP =	200.	AVER ERR S/R	=	0.000457	LST SQ ERR S/R	=	0.000636
MAX ERR GH/RT	=	0.000328	TEMP =	200.	AVER ERR GH/RT	=	0.000203	LST SQ ERR GH/RT	=	0.000224

Ti(a) Titanium Alpha Crystal. CODATA 1989, p230. T range = 900.000 to 1156.000 K

MAX REL ERR CP/R	=	0.000033	TEMP =	900.	AVER REL ERR CP/R	=	0.000014	REL LST SQ ERR CP/R	=	0.000019
MAX REL ERR HH/RT	=	0.000017	TEMP =	1100.	AVER REL ERR HH/RT	=	0.000007	REL LST SQ ERR HH/RT	=	0.000009
MAX REL ERR S/R	=	0.000043	TEMP =	900.	AVER REL ERR S/R	=	0.000032	REL LST SQ ERR S/R	=	0.000033
MAX REL ERR GH/RT	=	0.000068	TEMP =	1100.	AVER REL ERR GH/RT	=	0.000054	REL LST SQ ERR GH/RT	=	0.000055
MAX ERR CP/R	=	0.000123	TEMP =	900.	AVER ERR CP/R	=	0.000056	LST SQ ERR CP/R	=	0.000073
MAX ERR HH/RT	=	0.000052	TEMP =	1100.	AVER ERR HH/RT	=	0.000022	LST SQ ERR HH/RT	=	0.000029
MAX ERR S/R	=	0.000320	TEMP =	900.	AVER ERR S/R	=	0.000251	LST SQ ERR S/R	=	0.000258
MAX ERR GH/RT	=	0.000343	TEMP =	1100.	AVER ERR GH/RT	=	0.000260	LST SQ ERR GH/RT	=	0.000269

Ti(b) Titanium Beta Crystal. CODATA 1989, p230. T range = 1156.000 to 1944.000 K

MAX REL ERR CP/R	=	0.000030	TEMP =	1200.	AVER REL ERR CP/R	=	0.000012	REL LST SQ ERR CP/R	=	0.000015
MAX REL ERR HH/RT	=	0.000021	TEMP =	1500.	AVER REL ERR HH/RT	=	0.000011	REL LST SQ ERR HH/RT	=	0.000013
MAX REL ERR S/R	=	0.000027	TEMP =	1156.	AVER REL ERR S/R	=	0.000020	REL LST SQ ERR S/R	=	0.000021
MAX REL ERR GH/RT	=	0.000047	TEMP =	1300.	AVER REL ERR GH/RT	=	0.000039	REL LST SQ ERR GH/RT	=	0.000039
MAX ERR CP/R	=	0.000102	TEMP =	1200.	AVER ERR CP/R	=	0.000048	LST SQ ERR CP/R	=	0.000058
MAX ERR HH/RT	=	0.000077	TEMP =	1500.	AVER ERR HH/RT	=	0.000040	LST SQ ERR HH/RT	=	0.000047
MAX ERR S/R	=	0.000236	TEMP =	1300.	AVER ERR S/R	=	0.000201	LST SQ ERR S/R	=	0.000202
MAX ERR GH/RT	=	0.000287	TEMP =	1500.	AVER ERR GH/RT	=	0.000238	LST SQ ERR GH/RT	=	0.000239

U(a) Uranium Alpha Crystal. CODATA, 1989, p234. T range = 200.000 to 942.000 K

MAX REL ERR CP/R	=	0.000489	TEMP =	500.	AVER REL ERR CP/R	=	0.000183	REL LST SQ ERR CP/R	=	0.000233
MAX REL ERR HH/RT	=	0.000250	TEMP =	400.	AVER REL ERR HH/RT	=	0.000052	REL LST SQ ERR HH/RT	=	0.000091
MAX REL ERR S/R	=	0.001055	TEMP =	200.	AVER REL ERR S/R	=	0.000141	REL LST SQ ERR S/R	=	0.000337
MAX REL ERR GH/RT	=	0.001987	TEMP =	200.	AVER REL ERR GH/RT	=	0.000227	REL LST SQ ERR GH/RT	=	0.000629
MAX ERR CP/R	=	0.001881	TEMP =	500.	AVER ERR CP/R	=	0.000744	LST SQ ERR CP/R	=	0.000921
MAX ERR HH/RT	=	0.000699	TEMP =	400.	AVER ERR HH/RT	=	0.000153	LST SQ ERR HH/RT	=	0.000259
MAX ERR S/R	=	0.005011	TEMP =	200.	AVER ERR S/R	=	0.000805	LST SQ ERR S/R	=	0.001632
MAX ERR GH/RT	=	0.004973	TEMP =	200.	AVER ERR GH/RT	=	0.000664	LST SQ ERR GH/RT	=	0.001586

U(l) Uranium Liquid. CODATA, 1989, p234. T range = 1408.000 to 4000.000 K

MAX REL ERR CP/R	=	0.000044	TEMP =	1600.	AVER REL ERR CP/R	=	0.000013	REL LST SQ ERR CP/R	=	0.000019
MAX REL ERR HH/RT	=	0.000014	TEMP =	2300.	AVER REL ERR HH/RT	=	0.000009	REL LST SQ ERR HH/RT	=	0.000009
MAX REL ERR S/R	=	0.000019	TEMP =	1408.	AVER REL ERR S/R	=	0.000011	REL LST SQ ERR S/R	=	0.000012
MAX REL ERR GH/RT	=	0.000032	TEMP =	1600.	AVER REL ERR GH/RT	=	0.000020	REL LST SQ ERR GH/RT	=	0.000021
MAX ERR CP/R	=	0.000253	TEMP =	1600.	AVER ERR CP/R	=	0.000080	LST SQ ERR CP/R	=	0.000113
MAX ERR HH/RT	=	0.000081	TEMP =	2300.	AVER ERR HH/RT	=	0.000050	LST SQ ERR HH/RT	=	0.000053
MAX ERR S/R	=	0.000279	TEMP =	1900.	AVER ERR S/R	=	0.000193	LST SQ ERR S/R	=	0.000199
MAX ERR GH/RT	=	0.000311	TEMP =	3100.	AVER ERR GH/RT	=	0.000241	LST SQ ERR GH/RT	=	0.000243

V(cr) Vanadium Crystal. JANAF Jun.1973. T range = 200.000 to 600.000 K

MAX REL ERR CP/R	=	0.000693	TEMP =	400.	AVER REL ERR CP/R	=	0.000195	REL LST SQ ERR CP/R	=	0.000289
MAX REL ERR HH/RT	=	0.000447	TEMP =	200.	AVER REL ERR HH/RT	=	0.000140	REL LST SQ ERR HH/RT	=	0.000205
MAX REL ERR S/R	=	0.000275	TEMP =	200.	AVER REL ERR S/R	=	0.000086	REL LST SQ ERR S/R	=	0.000117
MAX REL ERR GH/RT	=	0.000088	TEMP =	250.	AVER REL ERR GH/RT	=	0.000043	REL LST SQ ERR GH/RT	=	0.000051
MAX ERR CP/R	=	0.002186	TEMP =	400.	AVER ERR CP/R	=	0.000606	LST SQ ERR CP/R	=	0.000903
MAX ERR HH/RT	=	0.000667	TEMP =	250.	AVER ERR HH/RT	=	0.000253	LST SQ ERR HH/RT	=	0.000335
MAX ERR S/R	=	0.000646	TEMP =	200.	AVER ERR S/R	=	0.000315	LST SQ ERR S/R	=	0.000368
MAX ERR GH/RT	=	0.000215	TEMP =	600.	AVER ERR GH/RT	=	0.000097	LST SQ ERR GH/RT	=	0.000118

V(cr) Vanadium Crystal. JANAF Jun.1973. T range = 600.000 to 1400.000 K

MAX REL ERR CP/R	=	0.000623	TEMP =	1200.	AVER REL ERR CP/R	=	0.000312	REL LST SQ ERR CP/R	=	0.000375
MAX REL ERR HH/RT	=	0.000047	TEMP =	1000.	AVER REL ERR HH/RT	=	0.000023	REL LST SQ ERR HH/RT	=	0.000027
MAX REL ERR S/R	=	0.000054	TEMP =	600.	AVER REL ERR S/R	=	0.000022	REL LST SQ ERR S/R	=	0.000027
MAX REL ERR GH/RT	=	0.000068	TEMP =	600.	AVER REL ERR GH/RT	=	0.000044	REL LST SQ ERR GH/RT	=	0.000046
MAX ERR CP/R	=	0.002384	TEMP =	1200.	AVER ERR CP/R	=	0.001143	LST SQ ERR CP/R	=	0.001379
MAX ERR HH/RT	=	0.000137	TEMP =	1000.	AVER ERR HH/RT	=	0.000064	LST SQ ERR HH/RT	=	0.000078
MAX ERR S/R	=	0.000309	TEMP =	600.	AVER ERR S/R	=	0.000155	LST SQ ERR S/R	=	0.000181
MAX ERR GH/RT	=	0.000237	TEMP =	900.	AVER ERR GH/RT	=	0.000185	LST SQ ERR GH/RT	=	0.000190

TABLE X. - Continued.

V(cr) Vanadium Crystal. JANAF Jun.1973. T range = 1400.000 to 2190.000 K

MAX REL ERR CP/R	=	0.000885	TEMP =	1900.	AVER REL ERR CP/R	=	0.000463	REL LST SQ ERR CP/R	=	0.000544
MAX REL ERR HH/RT	=	0.000068	TEMP =	1500.	AVER REL ERR HH/RT	=	0.000039	REL LST SQ ERR HH/RT	=	0.000044
MAX REL ERR S/R	=	0.000016	TEMP =	2000.	AVER REL ERR S/R	=	0.000007	REL LST SQ ERR S/R	=	0.000009
MAX REL ERR GH/RT	=	0.000031	TEMP =	1600.	AVER REL ERR GH/RT	=	0.000020	REL LST SQ ERR GH/RT	=	0.000021
MAX ERR CP/R	=	0.004211	TEMP =	1900.	AVER ERR CP/R	=	0.002169	LST SQ ERR CP/R	=	0.002565
MAX ERR HH/RT	=	0.000220	TEMP =	1500.	AVER ERR HH/RT	=	0.000130	LST SQ ERR HH/RT	=	0.000148
MAX ERR S/R	=	0.000160	TEMP =	2000.	AVER ERR S/R	=	0.000068	LST SQ ERR S/R	=	0.000087
MAX ERR GH/RT	=	0.000184	TEMP =	1600.	AVER ERR GH/RT	=	0.000123	LST SQ ERR GH/RT	=	0.000129

W(cr) Tungsten Crystal. JANAF Jun.1966. T range = 200.000 to 1000.000 K

MAX REL ERR CP/R	=	0.001029	TEMP =	350.	AVER REL ERR CP/R	=	0.000258	REL LST SQ ERR CP/R	=	0.000366
MAX REL ERR HH/RT	=	0.000865	TEMP =	200.	AVER REL ERR HH/RT	=	0.000153	REL LST SQ ERR HH/RT	=	0.000261
MAX REL ERR S/R	=	0.000355	TEMP =	200.	AVER REL ERR S/R	=	0.000087	REL LST SQ ERR S/R	=	0.000119
MAX REL ERR GH/RT	=	0.000326	TEMP =	200.	AVER REL ERR GH/RT	=	0.000078	REL LST SQ ERR GH/RT	=	0.000111
MAX ERR CP/R	=	0.003051	TEMP =	350.	AVER ERR CP/R	=	0.000775	LST SQ ERR CP/R	=	0.001086
MAX ERR HH/RT	=	0.001384	TEMP =	200.	AVER ERR HH/RT	=	0.000305	LST SQ ERR HH/RT	=	0.000455
MAX ERR S/R	=	0.000993	TEMP =	200.	AVER ERR S/R	=	0.000407	LST SQ ERR S/R	=	0.000473
MAX ERR GH/RT	=	0.000390	TEMP =	200.	AVER ERR GH/RT	=	0.000196	LST SQ ERR GH/RT	=	0.000224

W(cr) Tungsten Crystal. JANAF Jun.1966. T range = 1000.000 to 2600.000 K

MAX REL ERR CP/R	=	0.000127	TEMP =	1100.	AVER REL ERR CP/R	=	0.000049	REL LST SQ ERR CP/R	=	0.000061
MAX REL ERR HH/RT	=	0.000036	TEMP =	1800.	AVER REL ERR HH/RT	=	0.000019	REL LST SQ ERR HH/RT	=	0.000022
MAX REL ERR S/R	=	0.000037	TEMP =	1100.	AVER REL ERR S/R	=	0.000027	REL LST SQ ERR S/R	=	0.000028
MAX REL ERR GH/RT	=	0.000061	TEMP =	1400.	AVER REL ERR GH/RT	=	0.000047	REL LST SQ ERR GH/RT	=	0.000048
MAX ERR CP/R	=	0.000428	TEMP =	1100.	AVER ERR CP/R	=	0.000181	LST SQ ERR CP/R	=	0.000218
MAX ERR HH/RT	=	0.000111	TEMP =	1800.	AVER ERR HH/RT	=	0.000060	LST SQ ERR HH/RT	=	0.000069
MAX ERR S/R	=	0.000403	TEMP =	2600.	AVER ERR S/R	=	0.000255	LST SQ ERR S/R	=	0.000260
MAX ERR GH/RT	=	0.000355	TEMP =	1400.	AVER ERR GH/RT	=	0.000303	LST SQ ERR GH/RT	=	0.000305

W(cr) Tungsten Crystal. JANAF Jun.1966. T range = 2600.000 to 3200.000 K

MAX REL ERR CP/R	=	0.001425	TEMP =	3000.	AVER REL ERR CP/R	=	0.000559	REL LST SQ ERR CP/R	=	0.000765
MAX REL ERR HH/RT	=	0.000057	TEMP =	2800.	AVER REL ERR HH/RT	=	0.000031	REL LST SQ ERR HH/RT	=	0.000034
MAX REL ERR S/R	=	0.000038	TEMP =	3100.	AVER REL ERR S/R	=	0.000035	REL LST SQ ERR S/R	=	0.000036
MAX REL ERR GH/RT	=	0.000041	TEMP =	3100.	AVER REL ERR GH/RT	=	0.000037	REL LST SQ ERR GH/RT	=	0.000037
MAX ERR CP/R	=	0.007025	TEMP =	3000.	AVER ERR CP/R	=	0.002742	LST SQ ERR CP/R	=	0.003749
MAX ERR HH/RT	=	0.000196	TEMP =	2800.	AVER ERR HH/RT	=	0.000109	LST SQ ERR HH/RT	=	0.000118
MAX ERR S/R	=	0.000461	TEMP =	3100.	AVER ERR S/R	=	0.000414	LST SQ ERR S/R	=	0.000415
MAX ERR GH/RT	=	0.000346	TEMP =	3100.	AVER ERR GH/RT	=	0.000305	LST SQ ERR GH/RT	=	0.000307

W(cr) Tungsten Crystal. JANAF Jun.1966. T range = 3200.000 to 3680.000 K

MAX REL ERR CP/R	=	0.002147	TEMP =	3600.	AVER REL ERR CP/R	=	0.001238	REL LST SQ ERR CP/R	=	0.001402
MAX REL ERR HH/RT	=	0.000050	TEMP =	3500.	AVER REL ERR HH/RT	=	0.000033	REL LST SQ ERR HH/RT	=	0.000036
MAX REL ERR S/R	=	0.000039	TEMP =	3500.	AVER REL ERR S/R	=	0.000022	REL LST SQ ERR S/R	=	0.000025
MAX REL ERR GH/RT	=	0.000040	TEMP =	3200.	AVER REL ERR GH/RT	=	0.000035	REL LST SQ ERR GH/RT	=	0.000036
MAX ERR CP/R	=	0.015938	TEMP =	3600.	AVER ERR CP/R	=	0.008399	LST SQ ERR CP/R	=	0.009596
MAX ERR HH/RT	=	0.000200	TEMP =	3680.	AVER ERR HH/RT	=	0.000126	LST SQ ERR HH/RT	=	0.000141
MAX ERR S/R	=	0.000498	TEMP =	3500.	AVER ERR S/R	=	0.000275	LST SQ ERR S/R	=	0.000309
MAX ERR GH/RT	=	0.000342	TEMP =	3200.	AVER ERR GH/RT	=	0.000311	LST SQ ERR GH/RT	=	0.000312

Xe Xenon. NSRDS-NBS 35, 1971. Temperature cutoff. T range = 1000.000 to 6000.000 K

MAX REL ERR CP/R	=	0.000012	TEMP =	6000.	AVER REL ERR CP/R	=	0.000003	REL LST SQ ERR CP/R	=	0.000004
MAX REL ERR HH/RT	=	0.000001	TEMP =	1300.	AVER REL ERR HH/RT	=	0.000000	REL LST SQ ERR HH/RT	=	0.000000
MAX REL ERR S/R	=	0.000000	TEMP =	1300.	AVER REL ERR S/R	=	0.000000	REL LST SQ ERR S/R	=	0.000000
MAX REL ERR GH/RT	=	0.000000	TEMP =	1700.	AVER REL ERR GH/RT	=	0.000000	REL LST SQ ERR GH/RT	=	0.000000
MAX ERR CP/R	=	0.000030	TEMP =	6000.	AVER ERR CP/R	=	0.000007	LST SQ ERR CP/R	=	0.000009
MAX ERR HH/RT	=	0.000002	TEMP =	1300.	AVER ERR HH/RT	=	0.000001	LST SQ ERR HH/RT	=	0.000001
MAX ERR S/R	=	0.000002	TEMP =	1300.	AVER ERR S/R	=	0.000001	LST SQ ERR S/R	=	0.000001
MAX ERR GH/RT	=	0.000001	TEMP =	1700.	AVER ERR GH/RT	=	0.000000	LST SQ ERR GH/RT	=	0.000000

Xe Xenon. NSRDS-NBS 35, 1971. FIXEDN = 5 with FILL. T range = 6000.000 to 20000.000 K

MAX REL ERR CP/R	=	0.014245	TEMP =	10500.	AVER REL ERR CP/R	=	0.006884	REL LST SQ ERR CP/R	=	0.007885
MAX REL ERR HH/RT	=	0.001917	TEMP =	12000.	AVER REL ERR HH/RT	=	0.000694	REL LST SQ ERR HH/RT	=	0.000853
MAX REL ERR S/R	=	0.000201	TEMP =	12000.	AVER REL ERR S/R	=	0.000070	REL LST SQ ERR S/R	=	0.000090
MAX REL ERR GH/RT	=	0.000052	TEMP =	13500.	AVER REL ERR GH/RT	=	0.000028	REL LST SQ ERR GH/RT	=	0.000032
MAX ERR CP/R	=	0.092926	TEMP =	20000.	AVER ERR CP/R	=	0.030230	LST SQ ERR CP/R	=	0.037331
MAX ERR HH/RT	=	0.004945	TEMP =	12000.	AVER ERR HH/RT	=	0.001946	LST SQ ERR HH/RT	=	0.002346
MAX ERR S/R	=	0.005973	TEMP =	12000.	AVER ERR S/R	=	0.002099	LST SQ ERR S/R	=	0.002700
MAX ERR GH/RT	=	0.001436	TEMP =	13500.	AVER ERR GH/RT	=	0.000771	LST SQ ERR GH/RT	=	0.000887

Zn(cr) Zinc Crystal. CODATA 1989, p221. T range = 200.000 to 692.730 K

MAX REL ERR CP/R	=	0.000061	TEMP =	400.	AVER REL ERR CP/R	=	0.000017	REL LST SQ ERR CP/R	=	0.000026
MAX REL ERR HH/RT	=	0.001027	TEMP =	200.	AVER REL ERR HH/RT	=	0.000166	REL LST SQ ERR HH/RT	=	0.000389
MAX REL ERR S/R	=	0.000636	TEMP =	200.	AVER REL ERR S/R	=	0.000102	REL LST SQ ERR S/R	=	0.000241
MAX REL ERR GH/RT	=	0.002352	TEMP =	200.	AVER REL ERR GH/RT	=	0.000344	REL LST SQ ERR GH/RT	=	0.000889
MAX ERR CP/R	=	0.000193	TEMP =	400.	AVER ERR CP/R	=	0.000054	LST SQ ERR CP/R	=	0.000081
MAX ERR HH/RT	=	0.001994	TEMP =	200.	AVER ERR HH/RT	=	0.000335	LST SQ ERR HH/RT	=	0.000757
MAX ERR S/R	=	0.002435	TEMP =	200.	AVER ERR S/R	=	0.000419	LST SQ ERR S/R	=	0.000927
MAX ERR GH/RT	=	0.004429	TEMP =	200.	AVER ERR GH/RT	=	0.000664	LST SQ ERR GH/RT	=	0.001675

TABLE X. - Concluded.

Zr(a) Zirconium Alpha Crystal. JANAF Jun.1979. T range = 200.000 to 1135.000 K

MAX REL ERR CP/R	=	0.000682	TEMP =	600.	AVER REL ERR CP/R	=	0.000149	REL LST SQ ERR CP/R	=	0.000231
MAX REL ERR HH/RT	=	0.000134	TEMP =	200.	AVER REL ERR HH/RT	=	0.000036	REL LST SQ ERR HH/RT	=	0.000051
MAX REL ERR S/R	=	0.000064	TEMP =	200.	AVER REL ERR S/R	=	0.000015	REL LST SQ ERR S/R	=	0.000022
MAX REL ERR GH/RT	=	0.000056	TEMP =	300.	AVER REL ERR GH/RT	=	0.000017	REL LST SQ ERR GH/RT	=	0.000023
MAX ERR CP/R	=	0.002237	TEMP =	600.	AVER ERR CP/R	=	0.000483	LST SQ ERR CP/R	=	0.000749
MAX ERR HH/RT	=	0.000249	TEMP =	200.	AVER ERR HH/RT	=	0.000084	LST SQ ERR HH/RT	=	0.000117
MAX ERR S/R	=	0.000224	TEMP =	200.	AVER ERR S/R	=	0.000085	LST SQ ERR S/R	=	0.000109
MAX ERR GH/RT	=	0.000138	TEMP =	300.	AVER ERR GH/RT	=	0.000055	LST SQ ERR GH/RT	=	0.000069

Zr(b) Zirconium Beta Crystal. JANAF Jun.1979. T range = 1135.000 to 2125.000 K

MAX REL ERR CP/R	=	0.000010	TEMP =	1400.	AVER REL ERR CP/R	=	0.000003	REL LST SQ ERR CP/R	=	0.000004
MAX REL ERR HH/RT	=	0.000011	TEMP =	1400.	AVER REL ERR HH/RT	=	0.000004	REL LST SQ ERR HH/RT	=	0.000005
MAX REL ERR S/R	=	0.000005	TEMP =	1500.	AVER REL ERR S/R	=	0.000003	REL LST SQ ERR S/R	=	0.000004
MAX REL ERR GH/RT	=	0.000010	TEMP =	1700.	AVER REL ERR GH/RT	=	0.000005	REL LST SQ ERR GH/RT	=	0.000006
MAX ERR CP/R	=	0.000035	TEMP =	1400.	AVER ERR CP/R	=	0.000013	LST SQ ERR CP/R	=	0.000016
MAX ERR HH/RT	=	0.000037	TEMP =	1400.	AVER ERR HH/RT	=	0.000015	LST SQ ERR HH/RT	=	0.000018
MAX ERR S/R	=	0.000058	TEMP =	2000.	AVER ERR S/R	=	0.000036	LST SQ ERR S/R	=	0.000041
MAX ERR GH/RT	=	0.000076	TEMP =	1700.	AVER ERR GH/RT	=	0.000039	LST SQ ERR GH/RT	=	0.000044

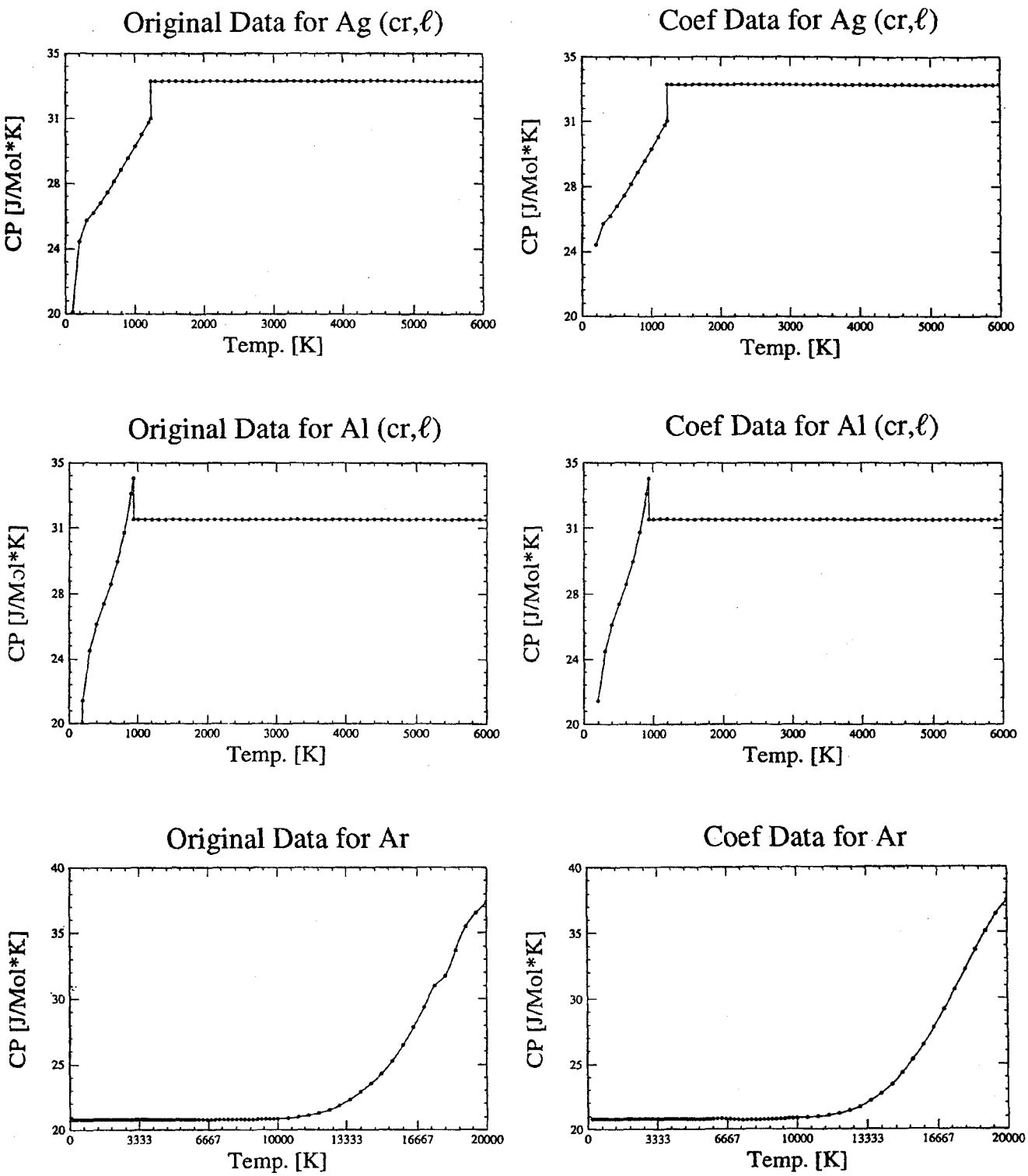

Figure 1.—Comparison of selected (labeled original) C_p° values given in table III with values calculated from the 9-constant coefficients given in table VI.

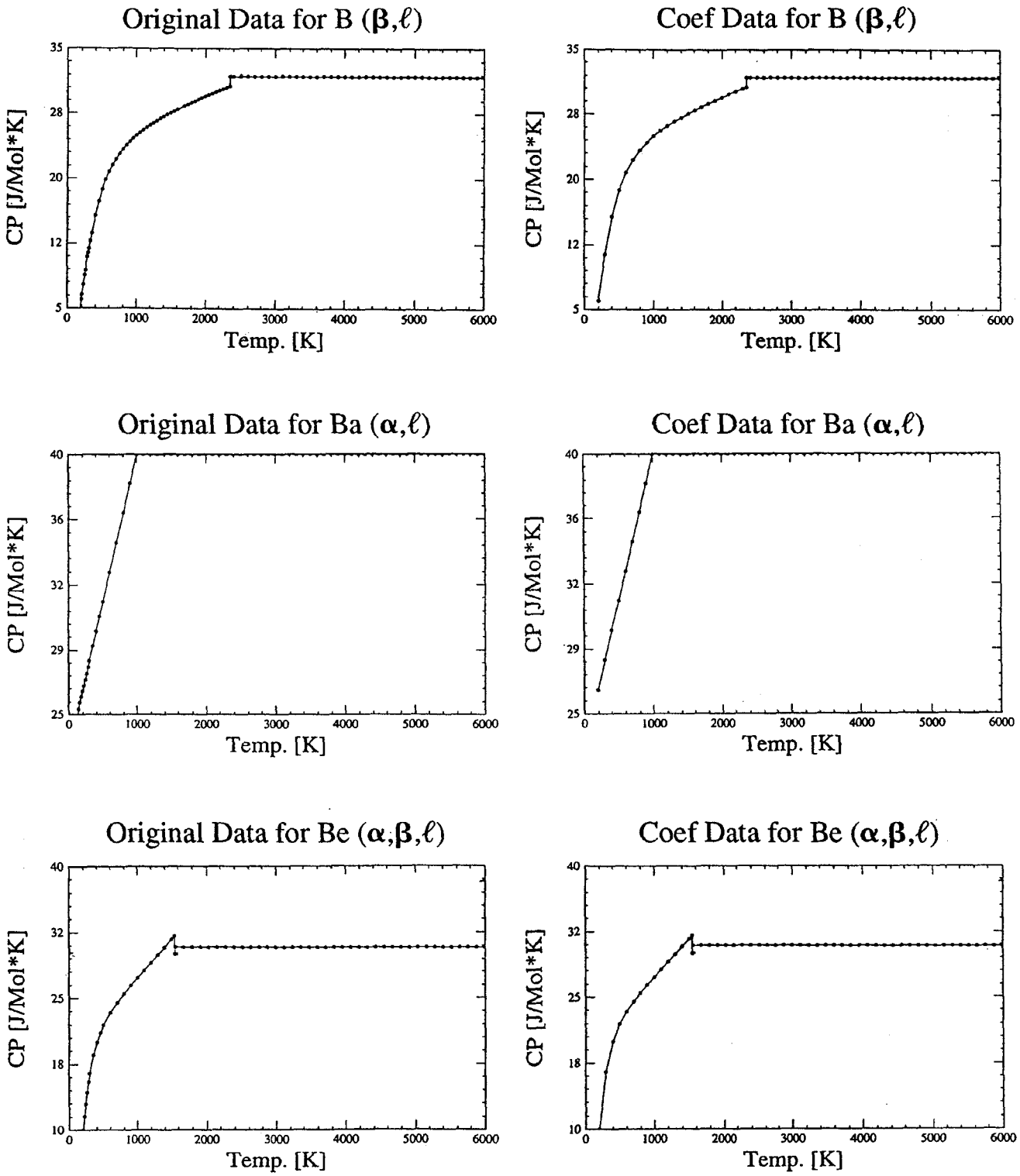

Figure 1.—Continued.

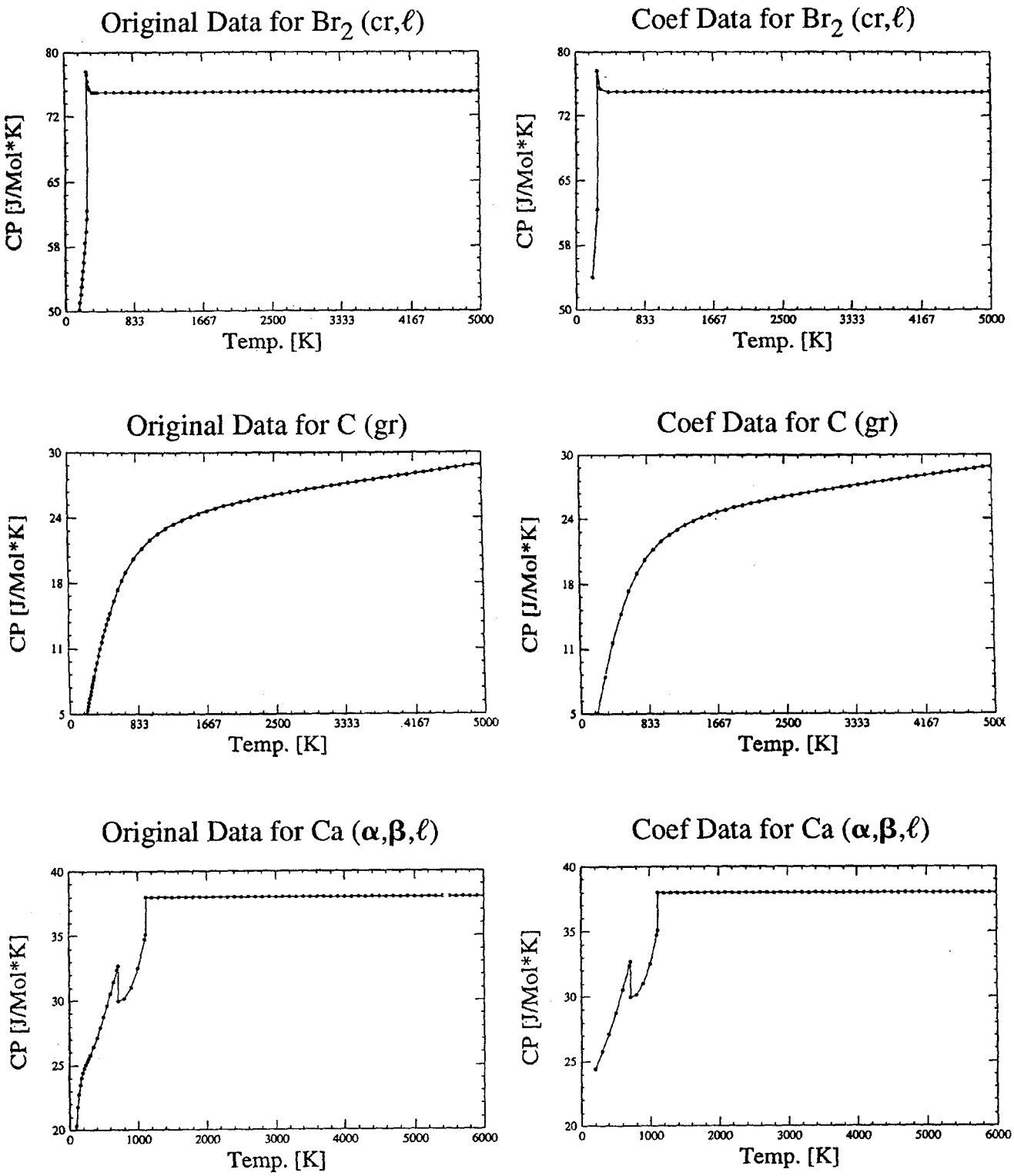

Figure 1.—Continued.

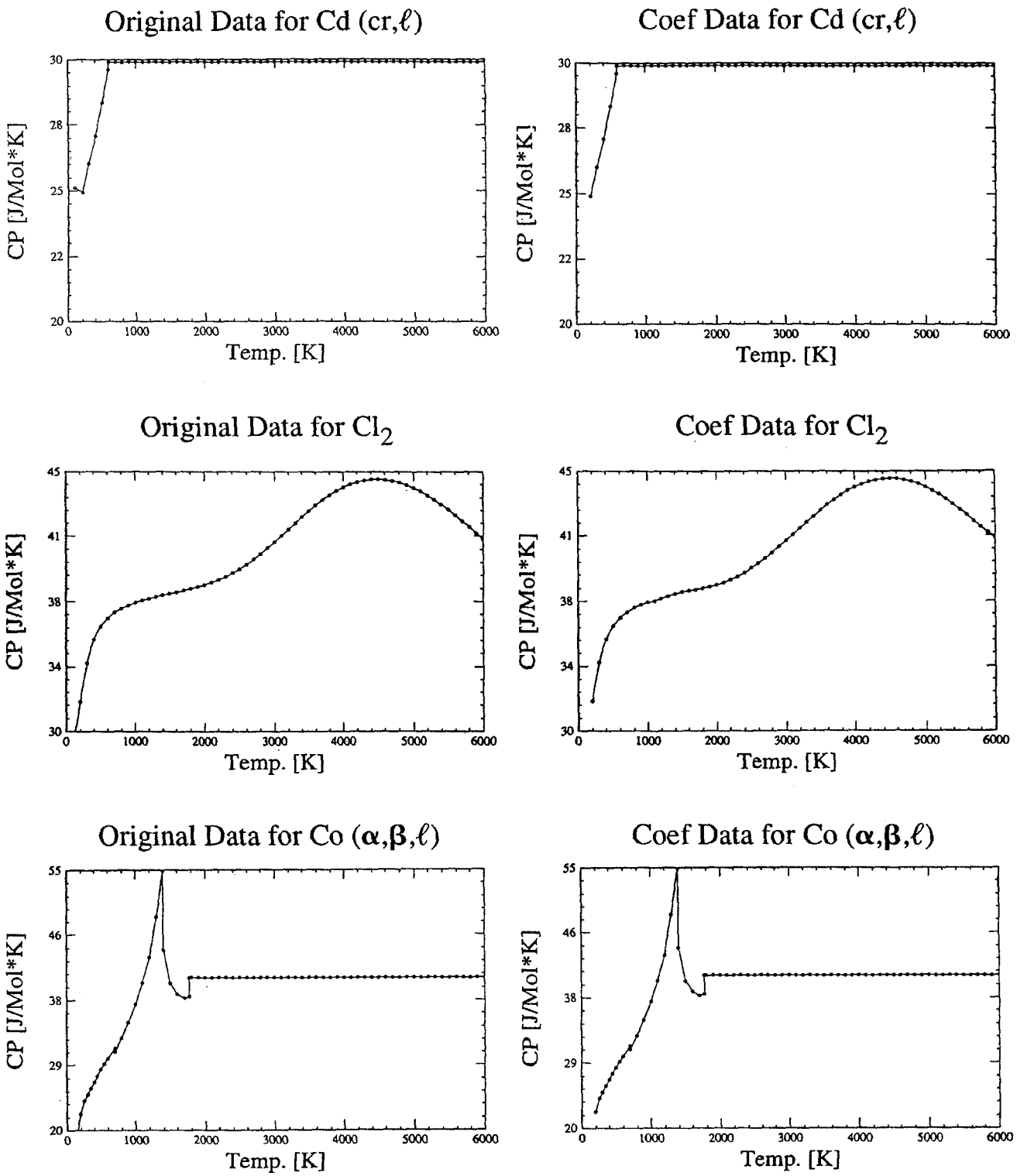

Figure 1.—Continued.

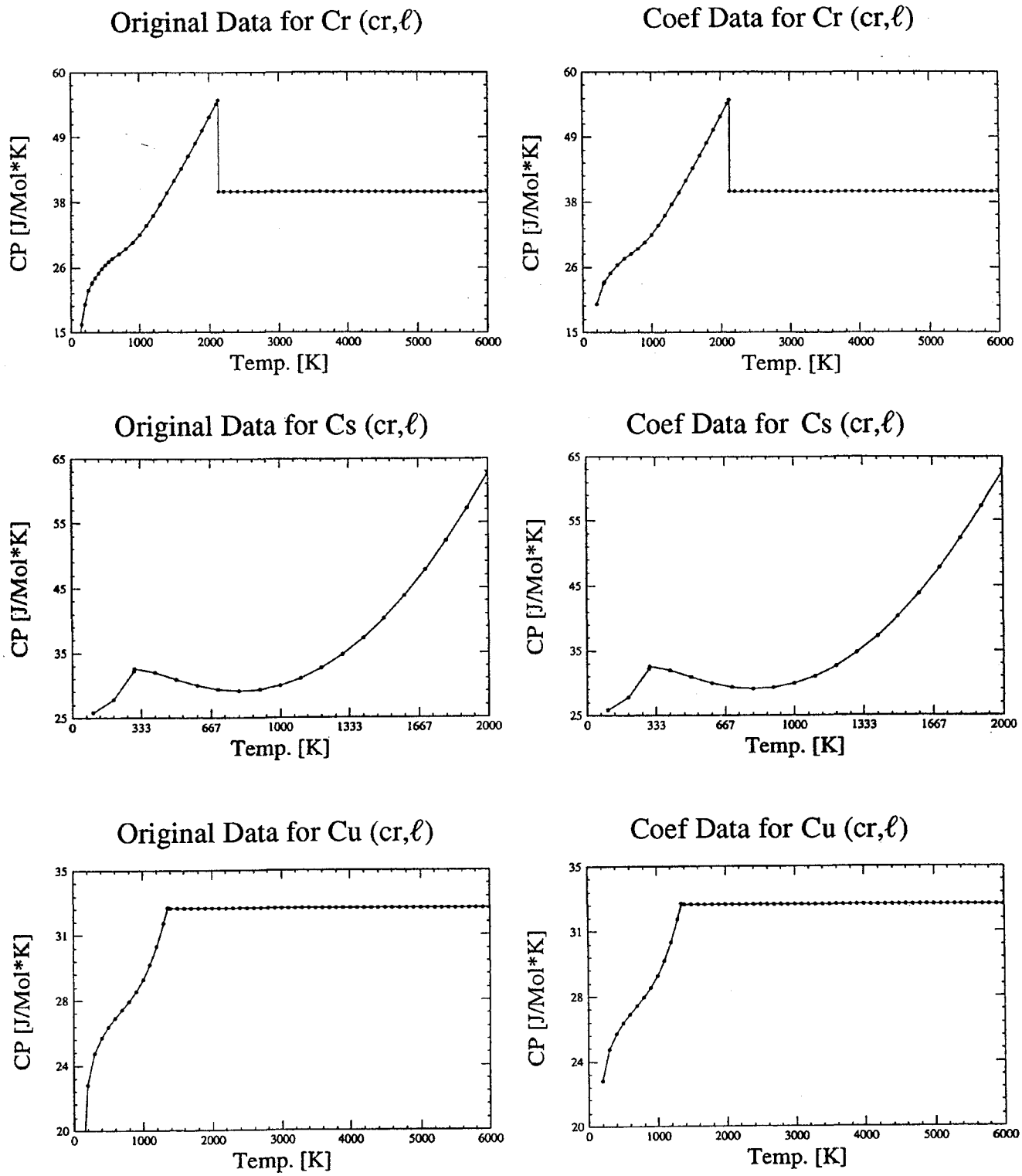

Figure 1.—Continued.

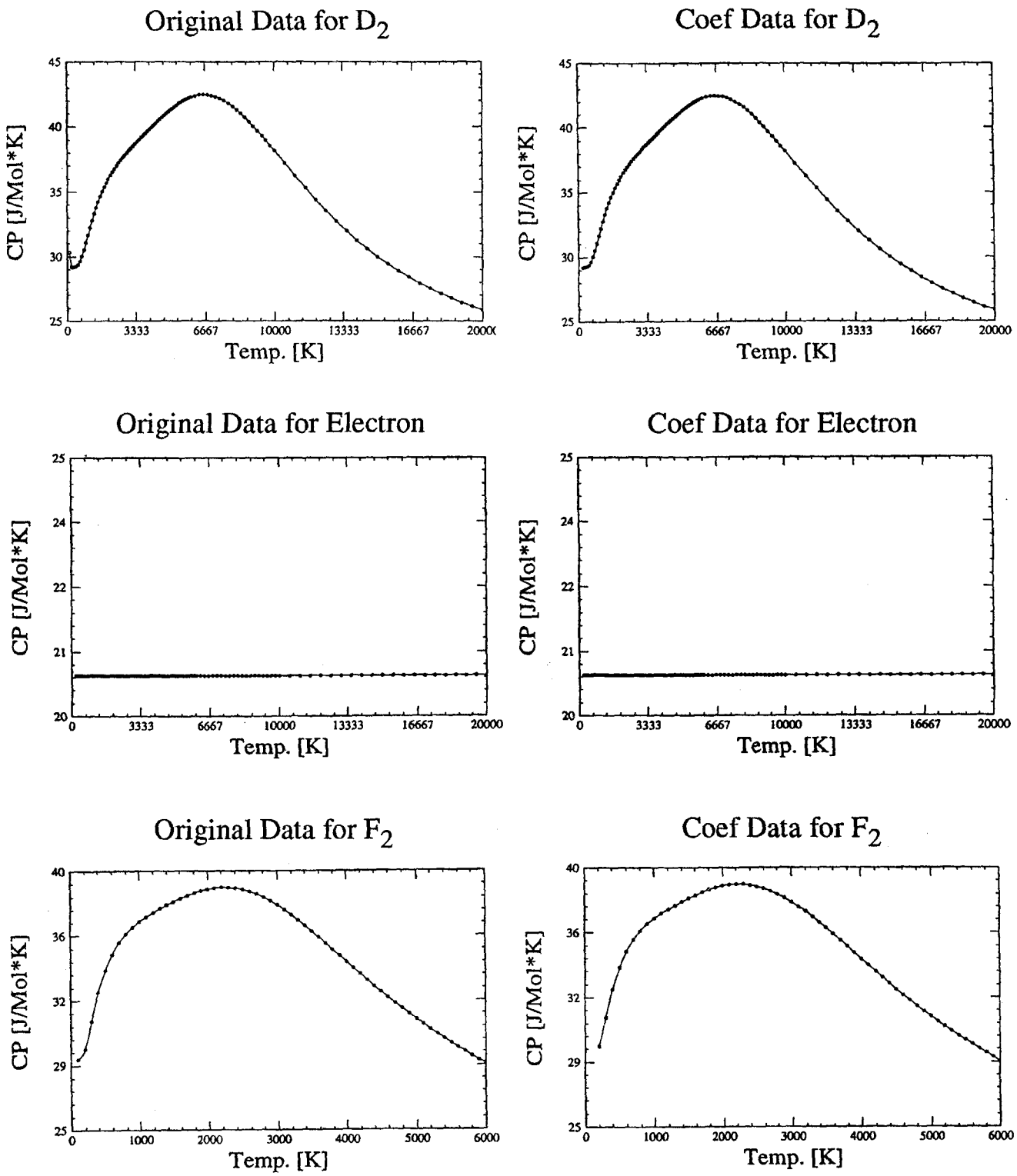

Figure 1.—Continued.

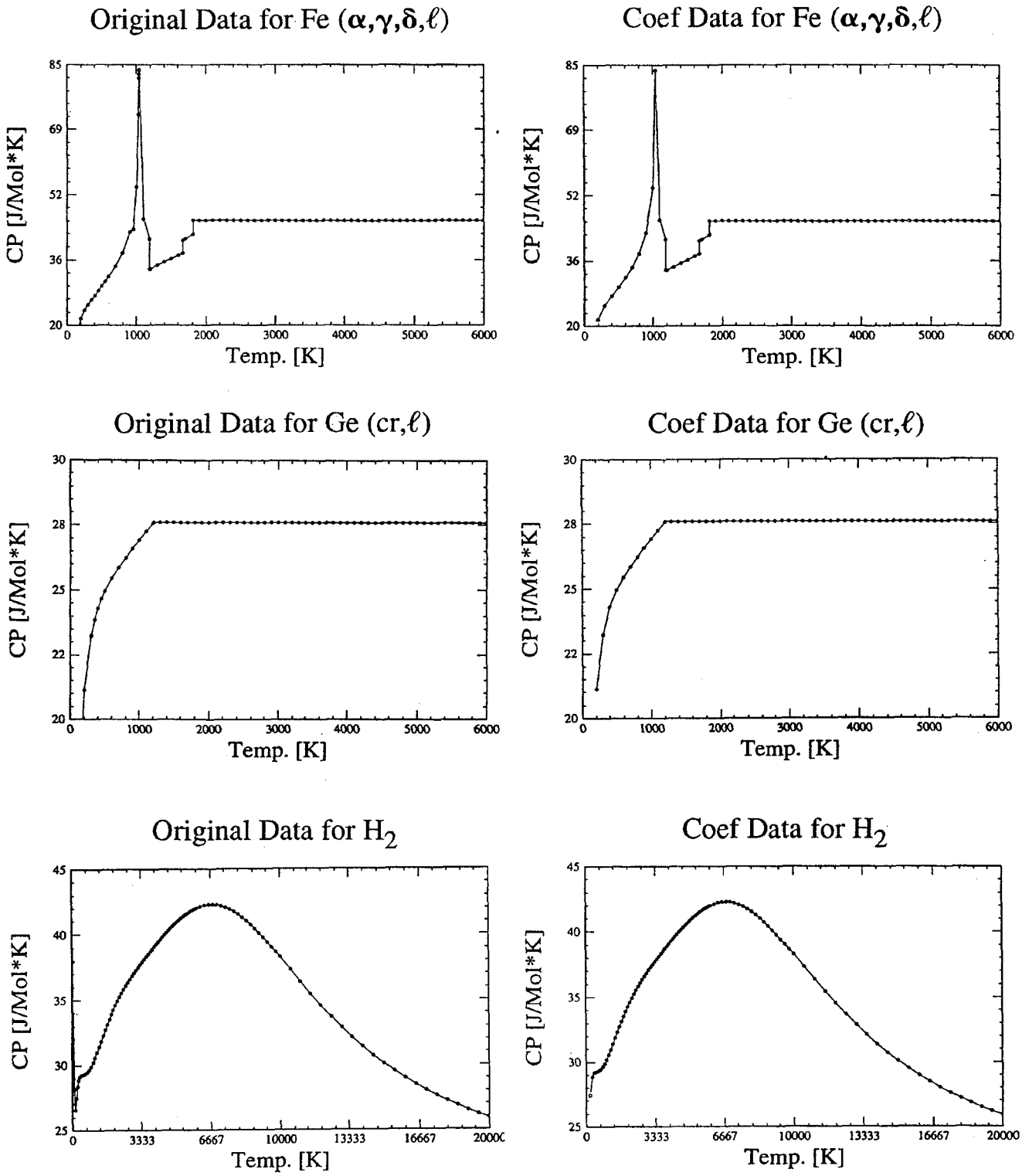

Figure 1.—Continued.

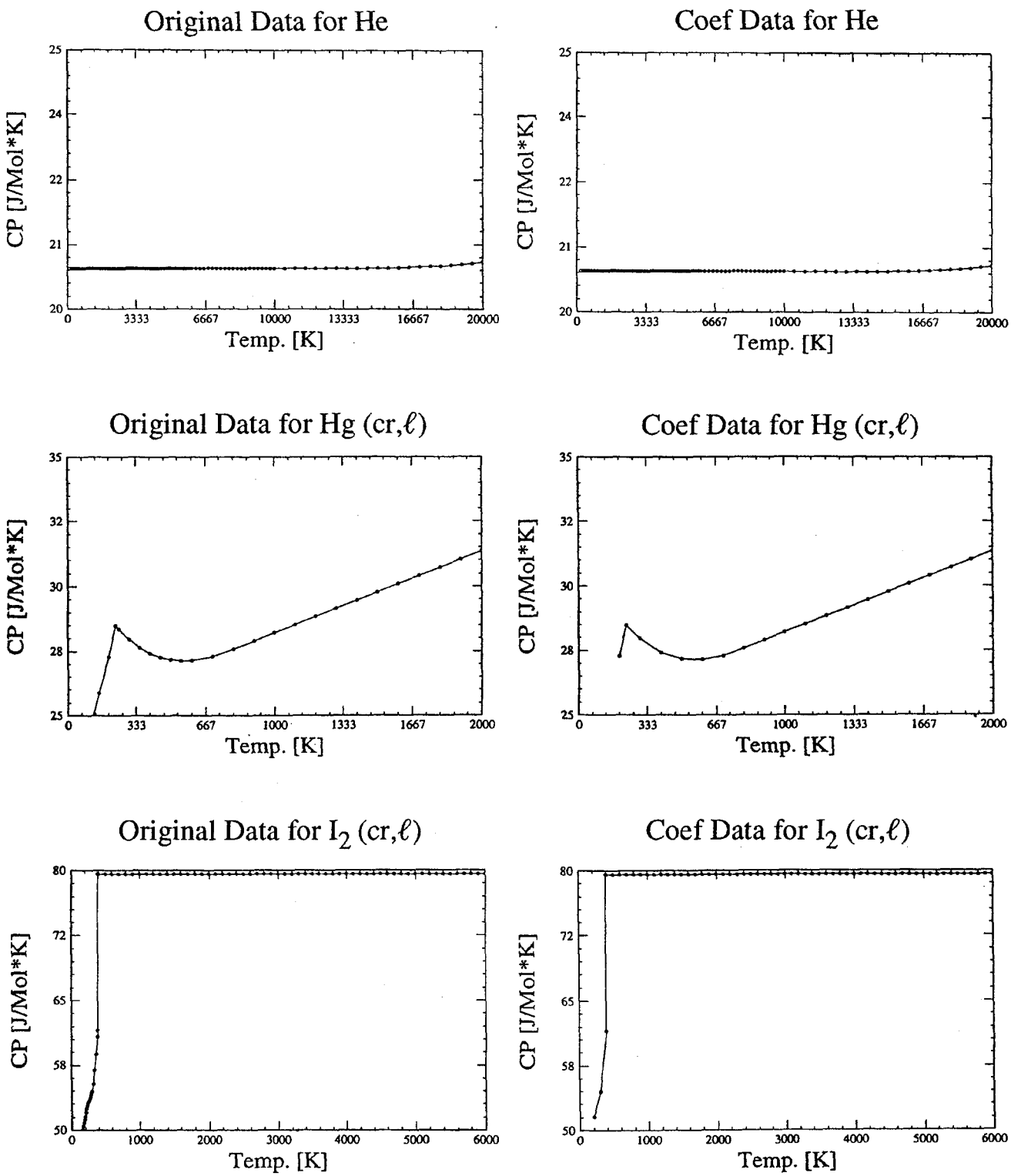

Figure 1.—Continued.

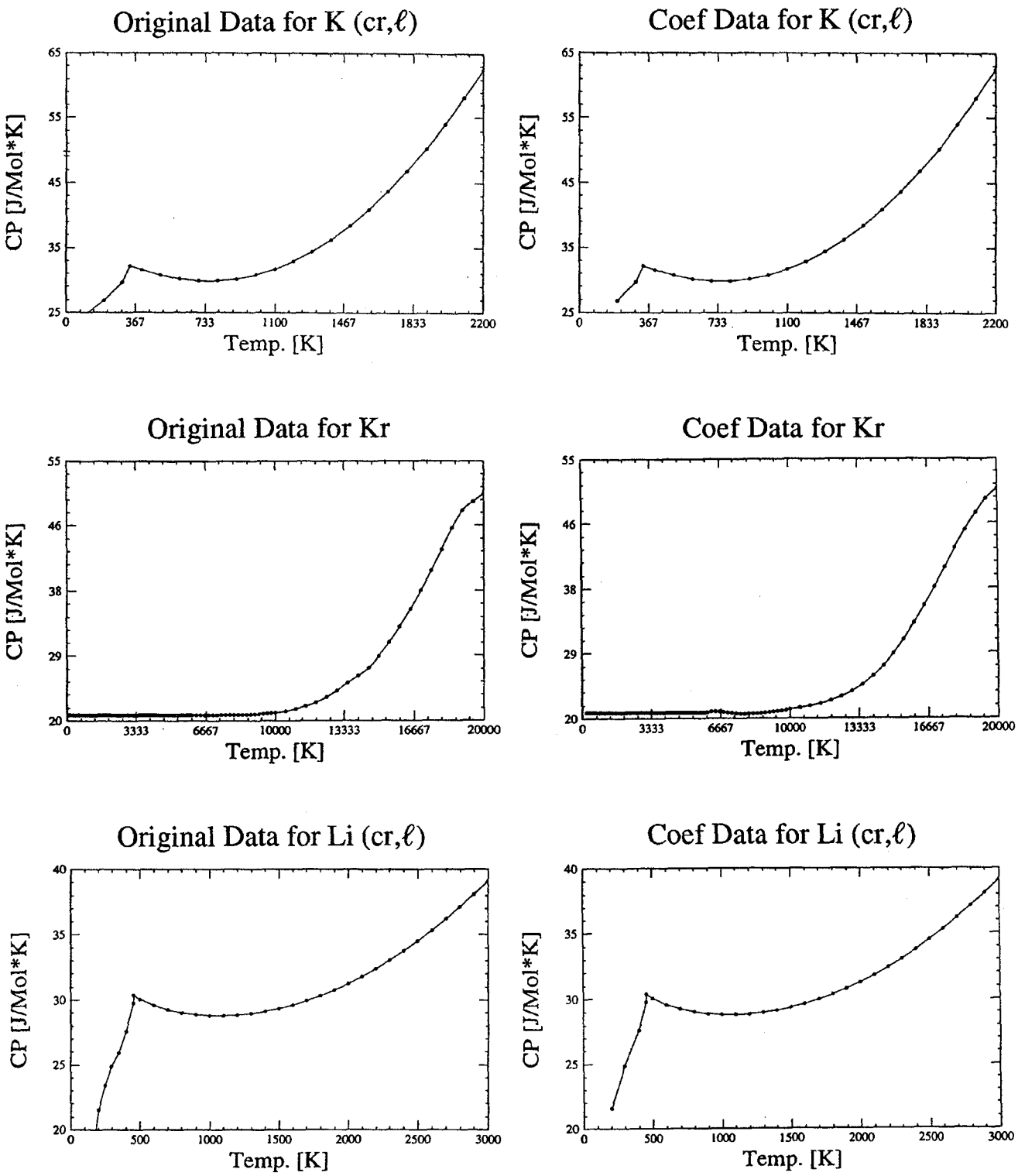

Figure 1.—Continued.

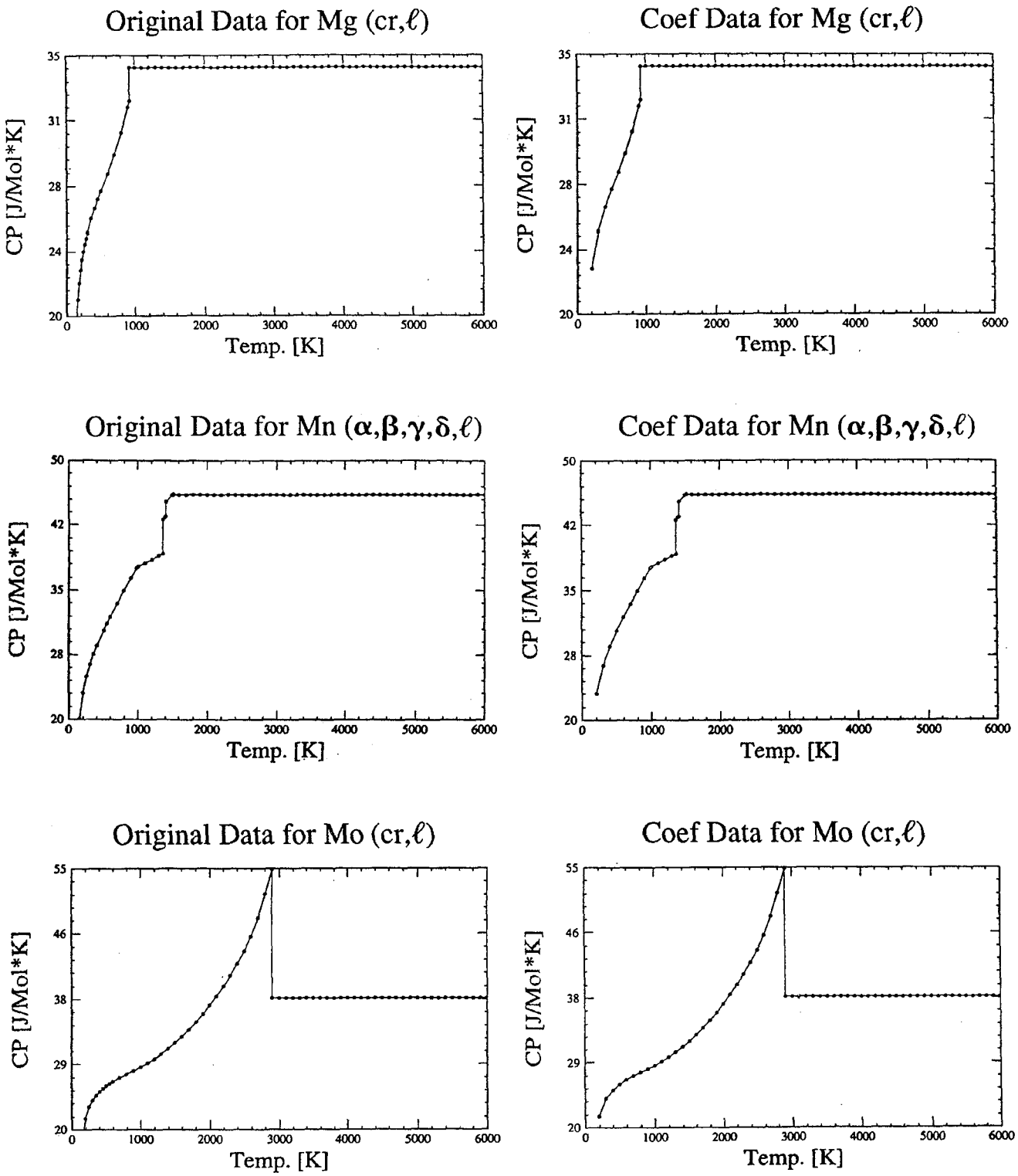

Figure 1.—Continued.

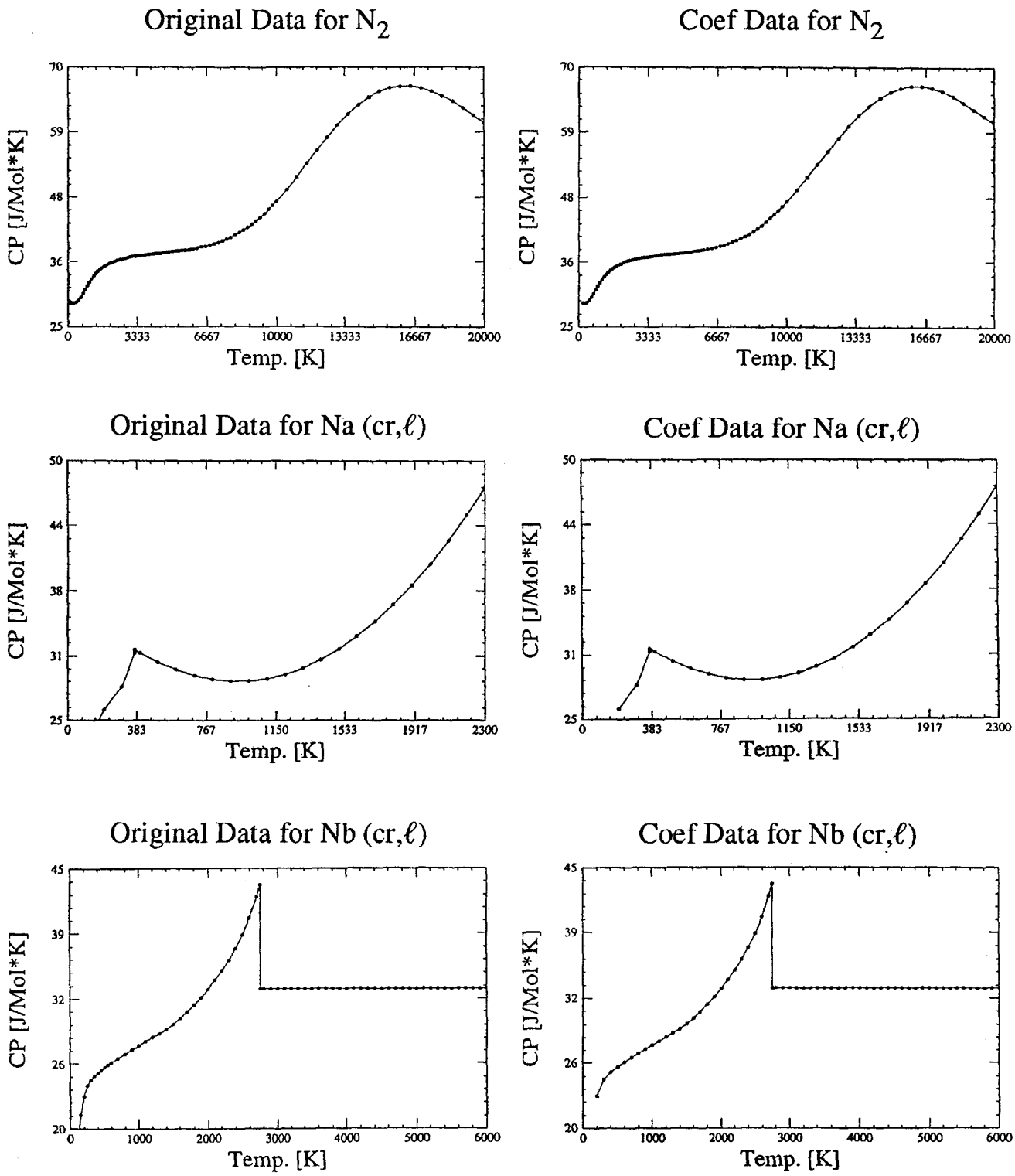

Figure 1.—Continued.

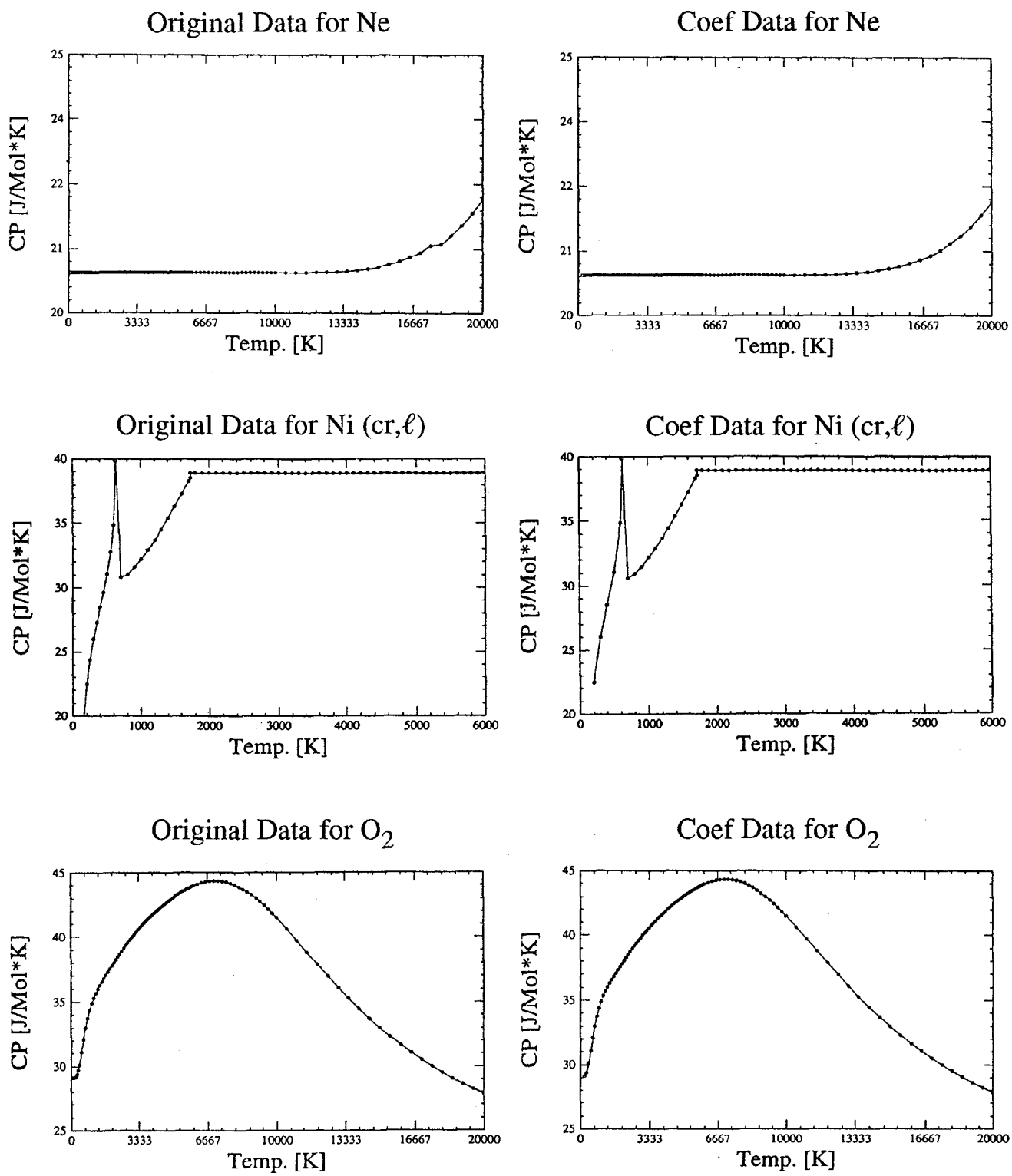

Figure 1.—Continued.

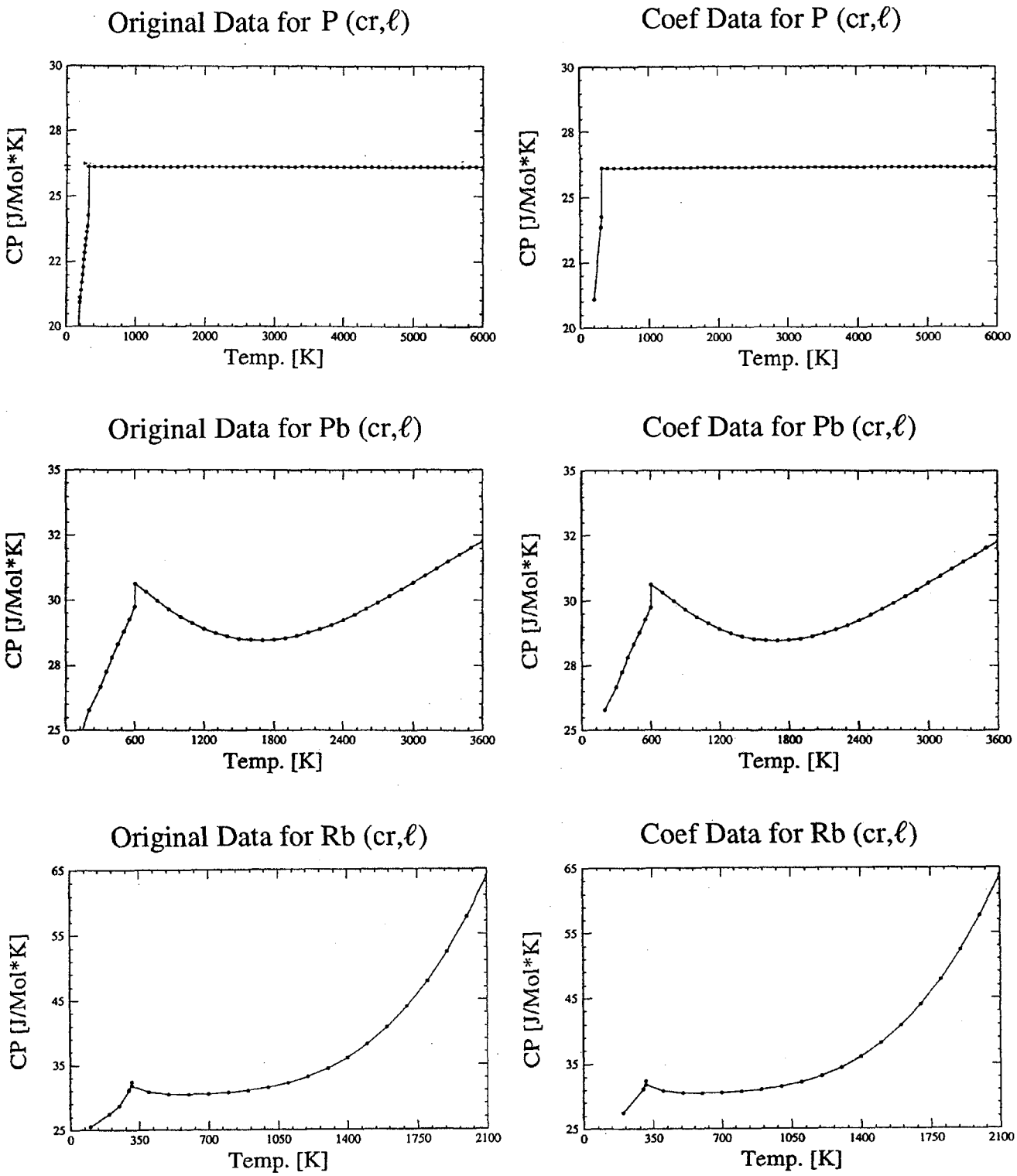

Figure 1.—Continued.

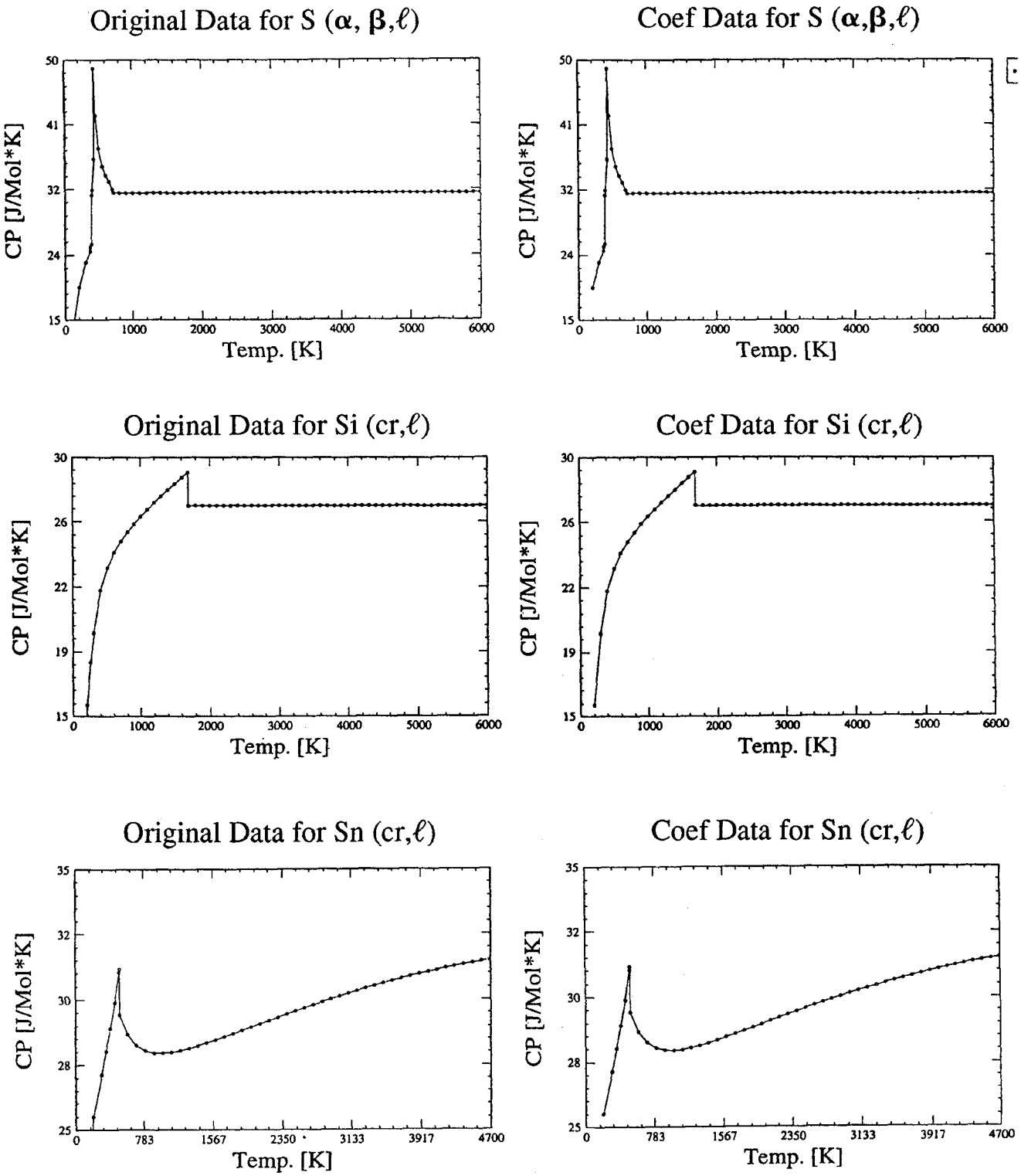

Figure 1.—Continued.

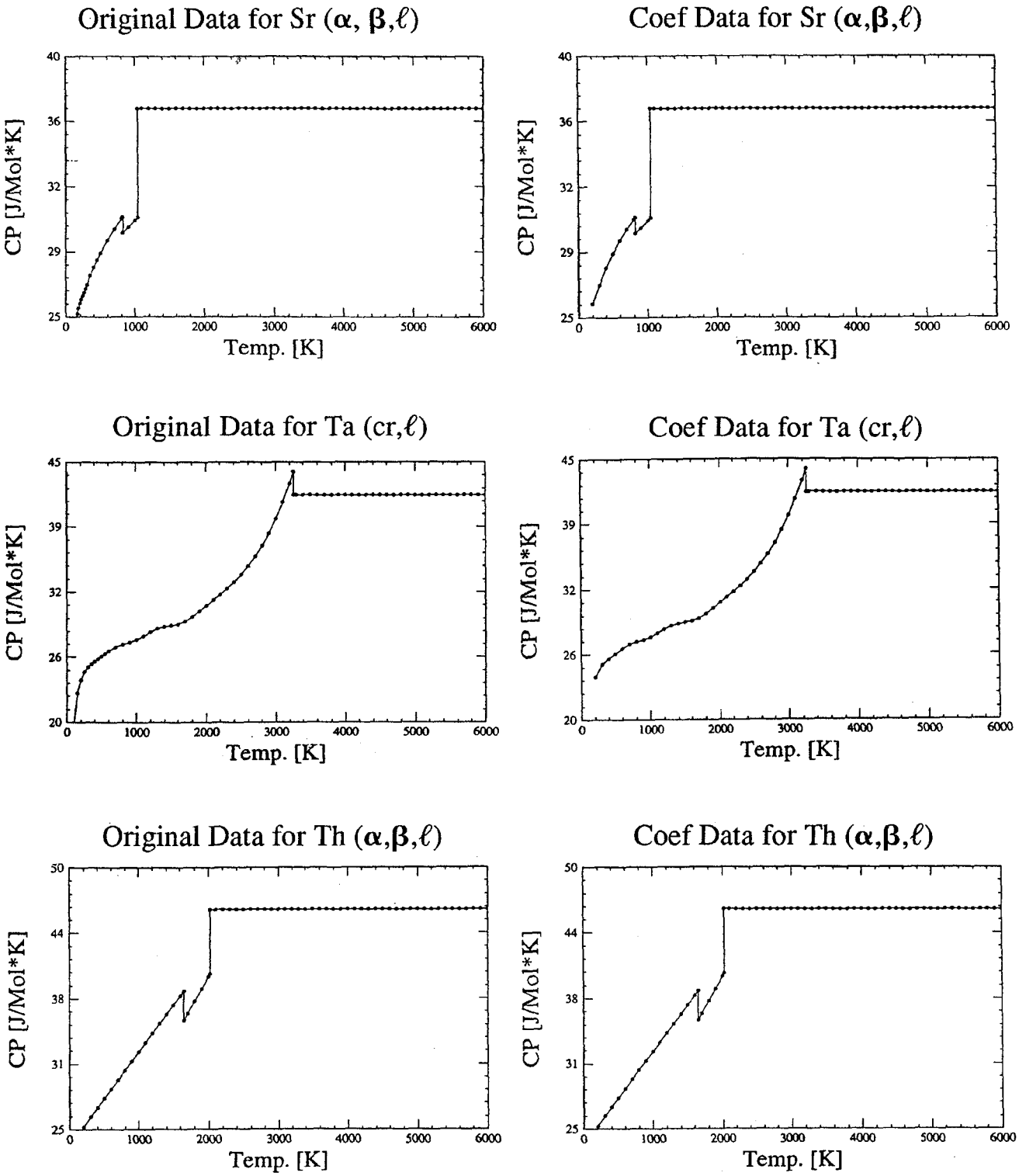

Figure 1.—Continued.

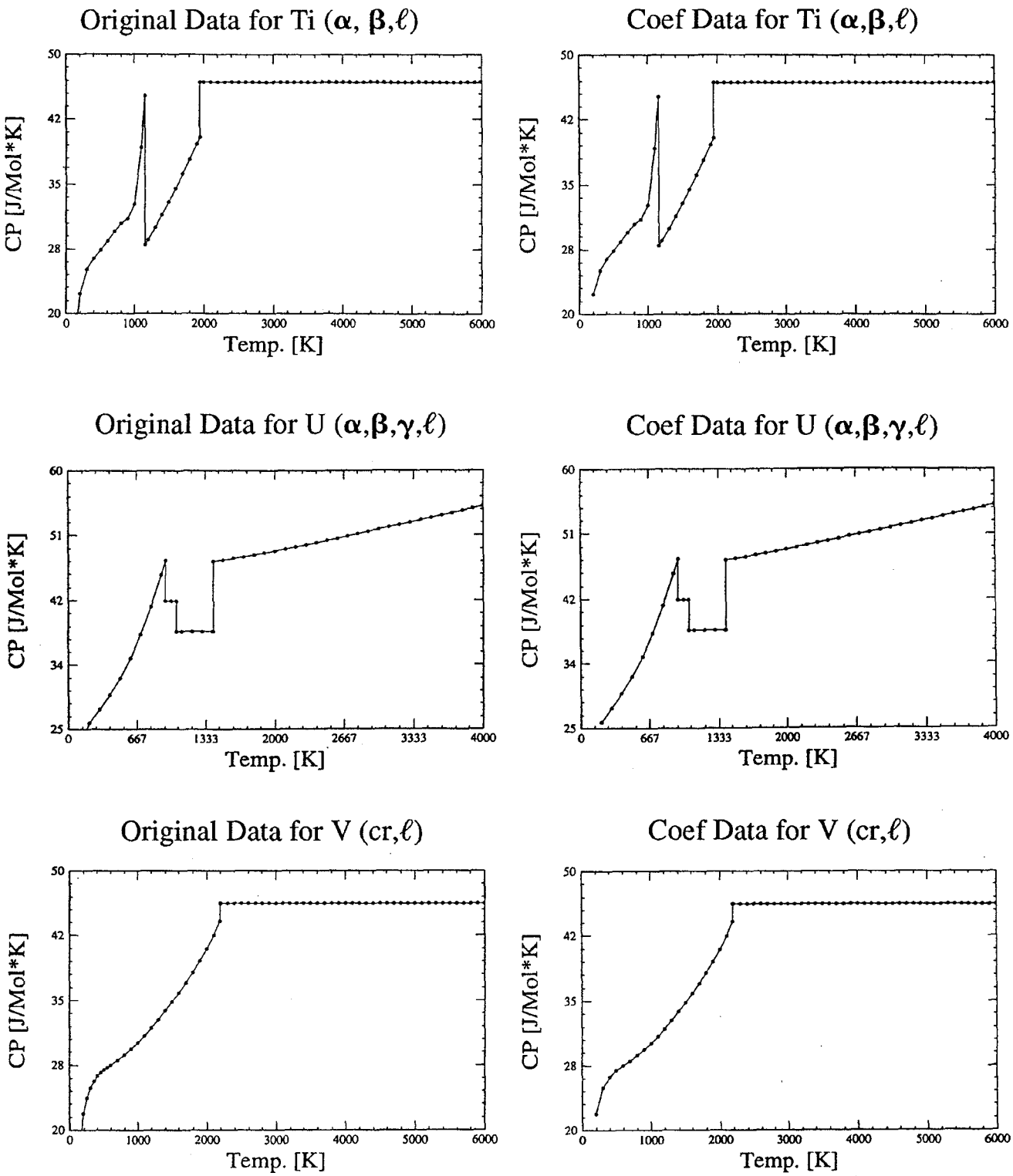

Figure 1.—Continued.

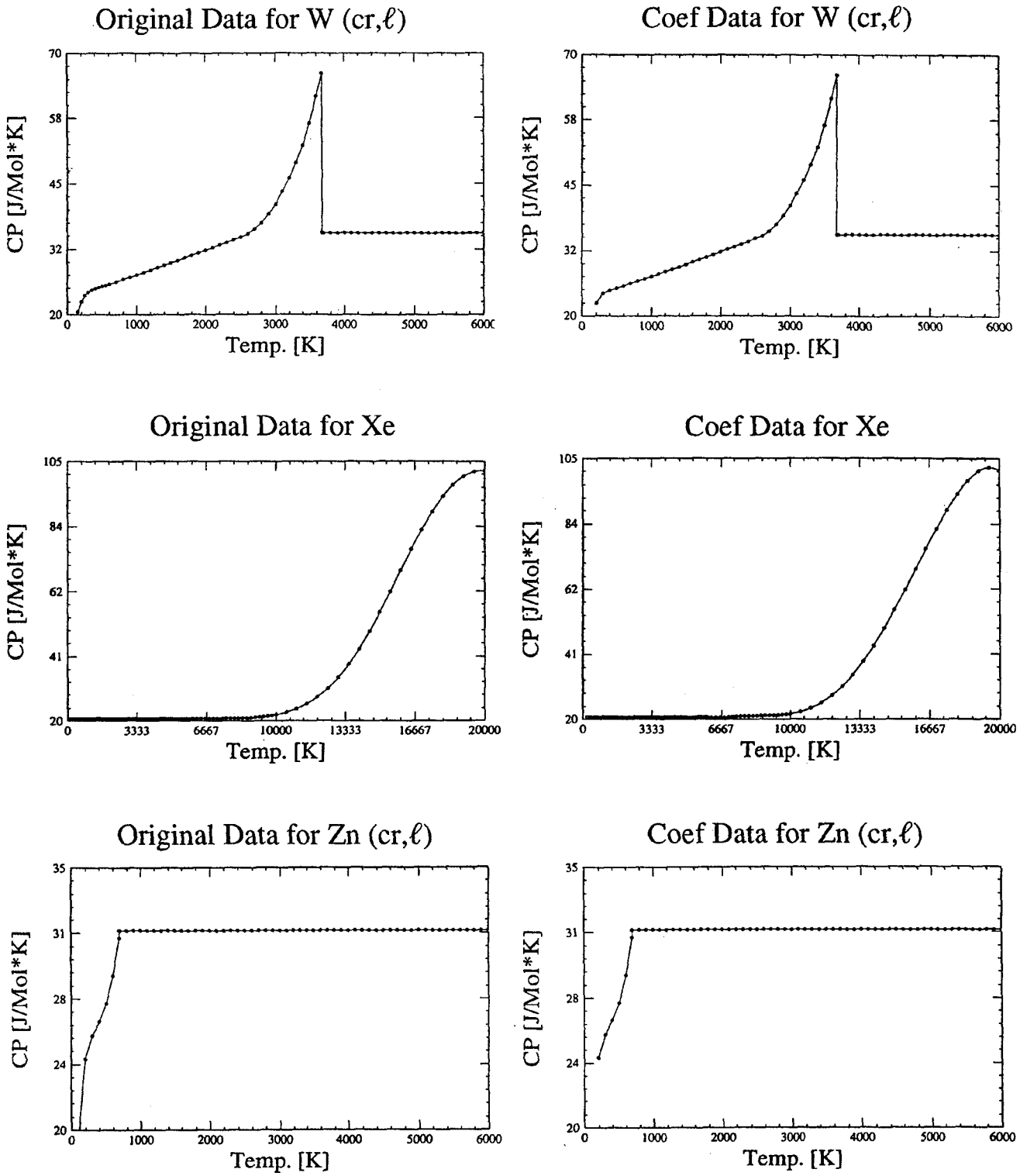

Figure 1.—Continued.

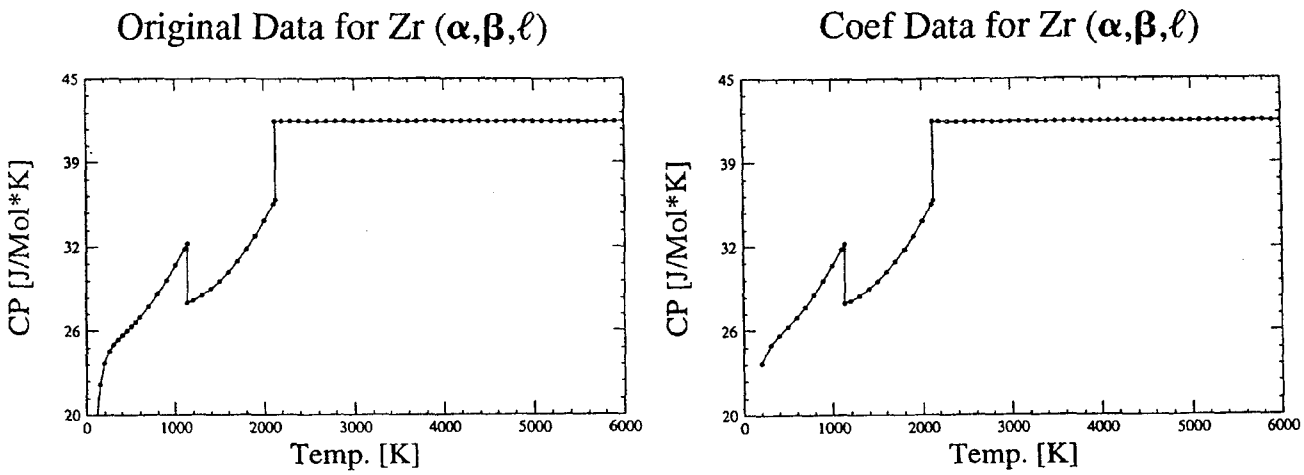

Figure 1.—Concluded.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (*Leave blank*)

2. REPORT DATE
February 2001

3. REPORT TYPE AND DATES COVERED
Technical Paper

4. TITLE AND SUBTITLE

Thermodynamic Data for Fifty Reference Elements

5. FUNDING NUMBERS

WU–708–87–13–00

6. AUTHOR(S)

Bonnie J. McBride, Sanford Gordon, and Martin A. Reno

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

National Aeronautics and Space Administration
John H. Glenn Research Center at Lewis Field
Cleveland, Ohio 44135–3191

8. PERFORMING ORGANIZATION REPORT NUMBER

E–6874–1

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

National Aeronautics and Space Administration
Washington, DC 20546–0001

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

NASA TP–3287-REV1

11. SUPPLEMENTARY NOTES

Bonnie J. McBride, NASA Glenn Research Center, Sanford Gordon, Sanford Gordon and Associates, 4078 Stonehaven Road, Cleveland, Ohio 44121, and Martin A. Reno, Heidelberg College, Tiffin, Ohio 44883. Responsible person, Bonnie J. McBride, organization code 5830, 216–433–5870.

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Unclassified - Unlimited
Subject Category: 77 Distribution: Standard

Available electronically at http://gltrs.grc.nasa.gov/GLTRS

This publication is available from the NASA Center for AeroSpace Information, 301–621–0390.

12b. DISTRIBUTION CODE

13. ABSTRACT ***(Maximum 200 words)***

This report is a compilation of thermodynamic functions of 50 elements in their reference state. The functions are C_p^o, $\{H^\circ(T)–H^\circ(0)\}$, $S^\circ(T)$, and $–\{G^\circ(T)–H^\circ(0)\}$ for the elements Ag, Al, Ar, B, Ba, Be, Br_2, C, Ca, Cd, Cl_2, Co, Cr, Cs, Cu, F_2, Fe, Ge, H_2, He, Hg, I_2, K, Kr, Li, Mg, Mn, Mo, N_2, Na, Nb, Ne, Ni, O_2, P, Pb, Rb, S, Si, Sn, Sr, Ta, Th, Ti, U, V, W, Xe, Zn, and Zr. Deuterium D_2 and electron gas e^- are also included. The data are tabulated as functions of temperature as well as given in the form of least-squares coefficients for two functional forms for C_p^o with integration constants for enthalpy and entropy. One functional form for C_p^o is a fourth-order polynomial and the other has two additional terms, one with T^{-1} and the other with T^{-2}. The gases Ar, D_2, e^-, H_2, He, Kr, N_2, Ne, O_2, and Xe are tabulated for temperatures from 100 to 20 000 K. The remaining gases Cl_2 and F_2 are tabulated from 100 to 6000 K. The polynomial functional form for C_p^o for all these gases is split into two temperature intervals—200 to 1000 K and 1000 to 6000 K. The second functional form for C_p^o has an additional interval from 6000 to 20 000 K for the gases tabulated to 20 000 K. The fits are constrained so that the properties match at the common temperature endpoints. The temperature ranges for the condensed species vary with range of the data, phase changes, and shapes of the C_p^o curves.

14. SUBJECT TERMS

Thermodynamic properties; Chemical elements

15. NUMBER OF PAGES
241

16. PRICE CODE
A11

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	