NBSIR 75-968

Selected Thermochemical Data Compatible with the CODATA Recommendations

V. B. Parker, D. D. Wagman, D. Garvin

Physical Chemistry Division
Institute for Materials Research
National Bureau of Standards
Washington, D. C. 20234

January 1976

Interim Report

Prepared for
Office of Standard Reference Data, NBS

International Atomic Energy Agency
Vienna, Austria

NBSIR 75-968

SELECTED THERMOCHEMICAL DATA COMPATIBLE WITH THE CODATA RECOMMENDATIONS

V. B. Parker, D. D. Wagman, D. Garvin

Physical Chemistry Division
Institute for Materials Research
National Bureau of Standards
Washington, D. C. 20234

January 1976

Interim Report

Prepared for
Office of Standard Reference Data, NBS
and
International Atomic Energy Agency
Vienna, Austria

U.S. DEPARTMENT OF COMMERCE, Elliot L. Richardson, ***Secretary***
James A. Baker, III, ***Under Secretary***
Dr. Betsy Ancker-Johnson, ***Assistant Secretary for Science and Technology***
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, ***Acting Director***

TABLE OF CONTENTS

This table has been designed to provide auxiliary data which may be used in the evaluation of thermochemical properties of compounds of the actinide elements. It includes the auxiliary data now being used in NBS evaluations of the properties of compounds of thorium, uranium, boron and some alkali metals. It probably is comprehensive enough for use in evaluations of compounds of the other actinides; but it can be expanded and redistributed if desirable.

The table has been prepared to assist the group of thermochemists that is evaluating the thermochemistry of the actinides for the International Atomic Energy Agency. The use of the values provided here in the preparation of each of the IAEA reviews will help assure that the values recommended in the entire set of reviews will be based on a consistent set of values for properties of compounds of the non-actinide elements.

2. CONTENTS OF THE TABLE OF THERMOCHEMICAL DATA

The following classes of material are given:

a) Values recommended by the CODATA Task Group as of 1975, complete [1]. The Task group recommended values for $\Delta Hf(298)$, $S(298)$ and $H(298)-H(0)$. Values listed for $\Delta Gf(298)$ and $\Delta Hf(0)$ have been calculated by us.

b) Properties of substances derived from measurements used in the course of the CODATA evaluations, such as properties of crystalline salts from their enthalpies and Gibbs energies of solution.

c) Recent selections for auxiliary data consistent with the CODATA Key Values that have been made by members of the Chemical Thermodynamics Data Center, NBS.

d) Selections from the NBS Technical Note 270 series [2] that have been recalculated to make them consistent with the CODATA recommendations.

e) Selections copied directly from the NBS Technical Note 270 series. Analysis has shown that these values are not affected by the CODATA recommendations.

For each substance in the table there is a comment identifying the source of the values except for those copies directly from the NBS Technical Note Series (class e, above).

3. DESCRIPTION OF ENTRIES IN THE TABLE

A two-line entry is given for each substance. The first line contains a compound number, the molecular formula, the formula weight, and one or more of the six properties ΔHf(0), ΔHf(298), ΔGf(298), H(298)-H(0), S(298) and Cp(298) in kcal/mol or cal/mol·K. The headings in the table for these properties are DHO, DH298, DG298, H298-HO, S298 and CP298, respectively. The second line shows the uncertainty for each value immediately below that entry and may have a comment in the space below the molecular formula. The symbol "+-" is used in the table for the plus or minus sign, ±.

Because this table is based on a machine-readable data bank, certain conventions have been adopted that permit both humans and a computer to decode the material. The essential points are covered below.

a) Molecular formula. A normal single-line chemical formula is written for each substance with four modifications:

(1) Subscripts and superscripts are written on line.

(2) The subscript "1" implicit in normal chemical formulae is written explicitly wherever it is necessary to separate the symbols for two chemical elements (written entirely in capital letters): $CaNO_3$ becomes CA1N103.

(3) The physical state of the substance is appended to the molecular formula in parentheses: HCℓ in 250 moles of water becomes H1CL(250H20). The conventions used in designating the state are given in Table A.

(4) Electrical charge for ions is written in the form +N or -N immediately preceding the physical state. When N=1 the digit may be omitted.

b) Formula Weight. This is calculated from the molecular formula using the 1969 Atomic Weights [3], and is shown uniformly to four decimal places.

c) Values for Properties. These are given in the units stated in the heading for the table, e.g. $\Delta Hf(298)$, $\Delta Gf(298)$, $H(298)-H(0)$ and $\Delta Hf(0)$ in kcal/mol, and, correspondingly, S(298) and Cp(298) in cal/(mol·K).

Some values in the data bank are in SI and some in calorie units. When a table is prepared in a single set of units some values must be converted. Conventional conversion and rounding rules are used by the computer program. (See Appendix). These are sufficient to assure that the CODATA recommendations in SI were converted to values in calorie units that agree with the auxiliary tables in the CODATA publications. Occasionally an extra decimal place is given, but the stated value will always round to match that given by CODATA.

d) Uncertainties. These are printed immediately below the values with which they are associated. Some values in the data bank have uncertainties supplied by the evaluators; others do not. In the latter case an arbitrary value is supplied. This is "10 in the last place" as the value exists in the data bank. It appears in square brackets: 48.20 +- [0.10], or, for a value converted from joules, 15.041 +- [0.024], where "+-" is used for the plus-or-minus sign, ±.

4. GENERAL REMARKS

Suggestions for the improvement and extension of this table will be welcomed by the authors. Users are urged to report any errors and to suggest revisions in the data.

The table itself has been prepared from a machine readable data bank with the aid of a computer program that incorporates manipulations such as calculation of formula weights, conversion of units, rounding and formatting of printing. This program is a modification of one developed by Dr. J. B. Pedley, University of Sussex, England, for use in the CATCH system of thermochemical analysis.

References

[1] "CODATA Recommended Key Values for Thermodynamics, 1975" (to be published as a CODATA Bulletin), and "Tentative Set of Key Values for Thermodynamics: Part V" CODATA Special Report 3, September 1975.

[2] D. D. Wagman et. al, Nat. Bur. Stand. (U.S.) Technical Notes 270-3 (Jan. 1968), 270-4 (May 1969), 270-5 (March 1971). V. B. Parker, et. al., NBS Technical Note 270-6 (November 1971). R. H. Schumm et al., NBS Technical Note 270-7 (April 1973).

[3] IUPAC Inorganic Chemistry Division Commission on Atomic Weights, Pure and Applied Chemistry 21, 91 (1970).

TABLE A: Physical State Conventions

The following conventions are used to designate the physical state of a substance. These apply to the attached table and to the NBS Thermochemical Data Bank. This information appears in a parenthetical expression appended to the molecular formula. Some of the explanations imply a thermochemical value, particularly those for solutions. These normally are used in describing enthalpy measurements.

Basic Symbols	Explanation
(G)	Gaseous, e.g., in H1CL(G) for $HC\ell(g)$
(GS)	Gaseous reference standard state for an element, e.g., O2(GS) for $O_2(g)$
(C)	Crystalline, e.g., in N1H4CL(C) for $NH_4C\ell(c)$
(CS)	Crystalline reference standard state for an element, e.g., in RB(CS) for Rb(c)
(L)	Liquid, e.g., in H2O(L) for $H_2O(\ell)$
(LS)	Liquid reference standard state for an element, e.g., in BR2(LS) for $Br_2(\ell)$
(AM)	Amorphous
(GL)	Glassy
(A)	Hypothetical standard state of the ideal aqueous solution at unit activity. For a neutral electrolyte the value of a property is equal to the algebraic sum of the values for the ions assumed to constitute the molecule of the electrolyte, e.g. $HC\ell(A) = H^+(A) + C\ell^-(A)$. For an ionic species this notation is commonly used to refer to the undissociated ion as written.

Symbol	Explanation
(AO)	Hypothetical standard state of the ideal aqueous solution at unit activity of the undissociated (non-ionized) species, e.g. HF(AO), HF_2-(AO). May also be used whenever the designation (A) could be ambiguous. Note that the descriptions HSO_4-(A) and HSO_4-(AO) are equivalent, but that HF(A) and HF(AO) are not.
(AU)	Aqueous solution of undefined, but usually dilute, concentration, e.g. XeO_3(AU).

The symbols used above occasionally are modified by numbers to distinguish two substances in the same state that have the same molecular weight, as for isomers,: (AU2), (C3). They are also used in combination with descriptive material, e.g. (C:HE), (C:AL) etc. to mean "crystalline, hexagonal", "crystalline, alpha form" etc.

Special notations for substances in solutions

The notations for the "state" of a substance in solution may combine a definition of the system, e.g. HCℓ in 220 moles of water, and a specification of the thermochemical property associated with it. Usually the thermochemical property is the apparent integral enthalpy or free energy of formation or an absolute entropy, i.e. the formation properties of the solvent are not included. If a partial molal property is tabulated the notation D: ("D" for "differential") occurs as the first term in the state bracket. The notations given below illustrate the differences for integral and differential (partial molal) properties, and extrapolated values. Examples are given for aqueous, mixed, and non-aqueous solvents.

Symbol	Explanation
H1CL(200H2O)	An aqueous solution of specified composition, e.g. one mole of HCℓ in 200 moles H_2O. The value of ΔHf represents the apparent integral enthalpy of formation.
H1CL(D:200H2O) and H2O(D:H1CL+200H2O)	These represent the partial molal (enthalpy) of formation of the substance in a solution of specified concentration, e.g. the partial molal enthalpy of formation of HCℓ and H_2O respectively, in a solution consisting of 1 mole HCℓ and 200 moles H_2O.
U1CL4(H1CL104+50H2O)	This describes a solute dissolved in a mixed solvent, e.g. one mole of $UC\ell_4$ in a mixture of 1 mole of $HC\ell O_4$ and 50 moles H_2O. The value of ΔHf represents the apparent integral enthalpy of formation of the substance, $UC\ell_4$, in the medium.
U1CL4(H1CL104+ 50H2O:AU)	This represents a solute at an unspecified but usually dilute concentration in a solvent mixture of fixed composition.

Symbol	Explanation
U1CL4(D:H1N103+50H2O)	Specifies the partial molal (enthalpy) of formation of a substance in a mixed medium, e.g. the enthalpy of formation of 1 mole of $UC\ell_4$ in a large amount of a solution containing $UC\ell_4$, HNO_3 and H_2O in the molar ratios 1:1:50.
U1CL4(L(H1CL):AU)	Specifies a thermochemical value extrapolated from those in a particular type of solution, e.g. the integral (enthalpy) of formation of $UC\ell_4$ at an unspecified concentration in water solution obtained by extrapolation from values in solutions containing $HC\ell$ at varying concentrations.
RB1I(C1H3C1N:S)	Ideal solution of a substance (RbI) in a non-aqueous solvent (CH_3CN), the substance being in the standard state of unit activity on the molal scale unless otherwise indicated. (In some early entries in the Data Bank these are written ambiguously as (C1H3C1N)).
RB1I(C1H3C1N:U)	Solution of a substance (RbI) in a non-aqueous solvent (CH_3CN) at an unspecified concentration. This is analogous to (AU).
RB1I(1000C1H3C1N)	Solution of a substance (RbI) in a non-aqueous solvent (CH_3CN) at a specified concentration.

Appendix. Conversion and Rounding

The rules used here are given below. They are adaptations of rules in two editions (1970 and 1974) of the "Metric Practice Guide" published by the American Society for Testing and Materials.* The conversion procedure is from Section 4.4.1.1, ASTM E380-70 which is a special case of the procedure in Section 4.2.1, ASTM E380-74. The rounding procedure is taken without change from Section 4.4, ASTM E380-74.

We suggest that these rules are suitable for use in other applications involving the conversion of energy quantities.

1. Input to the data bank. A number and its uncertainty are written to the same least significant decimal place. Normally not more than two significant digits appear in the uncertainty.

2. Output and Printing

(a) A number and uncertainty present in the data bank in the same units as those used in a table are printed without modification.

(b) A number and its uncertainty, whether converted or not, are printed to the same least significant decimal place.

3. Conversion of units. The number and its uncertainty are converted separately. The decimal place at which each is to be rounded is set as follows.

(a) If the most significant digit in the converted quantity is less than the most significant digit in the original, one more significant digit is used in the converted quantity than is present in the original.

*"Standard Metric Practice Guide (A Guide to the Use of SI- the International System of Units)", ASTM Designation E380-74, American National Standard Z210.1, (American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA. USA 19103), 1974. —— , ASTM Designation E380-70, (Am. Soc. for Testing and Materials), 1970.

Otherwise the same number of significant digits is used.

Example $2.0 \times (1/4.184) = 0.48$

$4.3 \times (1/4.184) = 1.03$

(b) The number of significant digits derived for the value in (a) above is decreased, if necessary, to the smaller number required by either of the following criteria.

(1) No more than two significant digits in the uncertainty, or,

(2) No more than three decimal places (0.001) in the value (and the uncertainty).

4. Rounding. Consider the quantity that is to be rounded to be written in the form $N.R \times 10^K$

where K is an integer and the fractional portion R is to be discarded in the rounding process.

If $R < 0.5$, then no change is made in N

If $R > 0.5$ then one unit is added to N

If $R = 0.5$ exactly, then one unit is added to N if N is odd, no change is made if N is even.

Note: These rules may increase the number of significant digits in a quantity, but only by one, in a sequence of conversions., e.g., joules → calories → joules → calories, etc.

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
1 O(G)	15.9994	58.982	59.553	55.390	1.608	38.467	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.024	+-0.024	+-0.024	+-0.001	+-0.005	
2 O2(GS)	31.9988	0	0	0	2.075	49.005	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.001	+-0.008	
3 H(G)	1.0080	51.633	52.103	48.588	1.4810	27.391	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.001	+-0.002	+-0.002	+-0.0005	+-0.004	
4 H+(A)	1.0080		0	0		0	
CONVENTION							
5 H2(GS)	2.0160	0	0	0	2.024	31.207	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.001	+-0.008	
6 O1H(G)	17.0074		9.31				
			+-[0.10]				
7 O1H-(A)	17.0074		-54.977	-37.604		-2.560	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.011	+-0.018		+-0.048	
8 H2O(L)	18.0154	-68.431	-68.315	-56.690	3.177	16.718	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.011	+-0.010	+-0.011	+-0.005	+-0.019	
9 H2O(G)	18.0154	-57.102	-57.795	-54.634	2.368	45.106	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.011	+-0.010	+-0.010	+-0.002	+-0.010	
10 H2O(A2)	18.0154		-68.440				
DIFFERENTIAL HEAT OF FORMATION IN			+-0.010				
HNO3+7.54H2O							
11 H2O(A4)	18.0154		-68.385				
DIFFERENTIAL HEAT OF SOLUTION IN			+-[0.010]				
HNO3+9.4H2O							
12 H2O(D:H1CL+10H2O)	18.0154		-68.440				
NBS TN 270 AND CODATA SCALES			+-[0.010]				
13 H2O(D:H1N103+9.4H2O)	18.0154		-68.385				
DIFFERENTIAL HEAT OF FORMATION			+-0.010				
14 H2O(D:H1N103+7.54H2O)	18.0154		-68.440				
DIFFERENTIAL HEAT OF FORMATION			+-0.010				
15 H2O(D:H1N103+7.50H2O)	18.0154		-68.442				
DIFFERENTIAL HEAT OF FORMATION			+-[0.010]				
16 H2O2(AQ)	34.0148		-45.690	-32.05		34.5	
COMPATIBLE WITH NBS 270-3			+-[0.010]	+-[0.10]		+-[1.0]	
17 H2O2(AU)	34.0148		-45.69				
			+-[0.10]				
18 H2O2(110H2O)	34.0148		-45.69				
			+-[0.10]				
19 HE(GS)	4.0026	0	0	0	1.4810	30.124	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.0005	+-0.003	
20 NE(GS)	20.1790	0	0	0	1.4810	34.946	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.0005	+-0.004	
21 AR(GS)	39.9480	0	0	0	1.4810	36.982	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.0005	+-0.005	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
22 KR(GS)	83.8000	0	0	0	1.4810	39.190	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.0005	+-0.005	
23 XE(GS)	131.3000	0	0	0	1.481	40.529	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.005	
24 XE103(AU)	179.2982		99.940				
O'HARE ET AL (70)			+-[0.010]				
25 F(G)	18.9984	18.466	18.97	14.89	1.558	37.916	
BASED ON CODATA TENTATIVE VALUES (1975)		+-0.050	+-0.05	+-0.05	+-0.001	+-0.005	
26 F-(A)	18.9984		-80.15	-67.34		-3.15	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.16	+-0.16		+-0.13	
27 F2(GS)	37.9968	0	0	0	2.109	48.443	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.001	+-0.010	
28 H1F(G)	20.0064	-65.31	-65.32	-65.82	2.055	41.507	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.17	+-0.17	+-0.17	+-0.001	+-0.008	
29 H1F(AQ)	20.0064		-76.97	-71.68		22.09	
SEE FOOTNOTE F(7) OF CODATA RECOMMENDATIONS (FINAL), 1975			+-[0.10]	+-0.18		+-[0.10]	
30 H1F(1.33H2O)	20.0064		-76.162				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
31 H1F(20H2O)	20.0064		-76.932				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
32 H1F(23H2O)	20.0064		-76.936				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
33 H1F(30H2O)	20.0064		-76.945				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
34 H1F(100H2O)	20.0064		-76.974				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
35 H1F(133H2O)	20.0064		-76.980				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
36 H1F(200H2O)	20.0064		-76.990				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
37 H1F(267H2O)	20.0064		-77.003				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
38 H1F(400H2O)	20.0064		-77.034				
CODATA AND PHI(L) FROM JOHNSON ET AL (73)			+-[0.010]				
39 H1F2-(AQ)	39.0048		-156.4	-139.45		22.8	
BASED ON CODATA RECOMMENDED VALUES(1975)			+-0.2	+-0.25		+-0.8	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	. DH0	DH298	DG298	H298 - H0	S298	CP298
40 CL(G)	35.4530	28.590	28.992	25.173	1.499	39.454	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.002	+-0.002	+-0.003	+-0.001	+-0.005	
41 CL-1(A)	35.4530		-39.933	-31.380		13.56	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.021	+-0.030		+-0.04	
42 CL-(D:H1CL104+555H20)	35.4530		-39.741				
CODATA CL- PLUS L2 FOR HCL BASED ON NSRDS/NBS-2			+-[0.010]				
43 CL-(D:H1CL104+111.0H20)	35.4530		-39.521				
CODATA CL- AND L2 (HCL) BASED ON NSRDS/NBS-2			+-[0.010]				
44 CL2(L)	70.9060		-4.439				
FROM HEAT OF VAPORIZATION VBP (75)			+-[0.010]				
45 CL2(GS)	70.9060	0	0	0	2.194	53.290	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.002	+-0.010	
46 CL104-(A)	99.4506		-30.59				
DELTA H FROM LEAST SQUARES SOLUTION OF DATA ON 5 PERCHLORATES			+-0.12				
47 H1CL(G)	36.4610	-22.020	-22.063	-22.777	2.065	44.643	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.036	+-0.031	+-0.031	+-0.001	+-0.008	
48 H1CL(A)	36.4610		-39.933	-31.380		13.56	
CODATA (1975) CL-			+-0.021	+-0.030		+-0.04	
49 H1CL(3.61H20)	36.4610		-36.162				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
50 H1CL(3.91H20)	36.4610		-36.449				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
51 H1CL(4.0H20)	36.4610		-36.529				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
52 H1CL(5H20)	36.4610		-37.212				
CODATA (73) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
53 H1CL(10.0H20)	36.4610		-38.537				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
54 H1CL(12.73H20)	36.4610		-38.793				
CODATA (73) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
55 H1CL(55H20)	36.4610		-39.526				
CODATA (73) + PHI(L) FROM NSRDS/NBS-2			+-0.025				
56 H1CL(100H20)	36.4610		-39.638				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
57 H1CL(110H20)	36.4610		-39.652				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
58 H1CL(200H20)	36.4610		-39.721				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
59 H1CL(220H20)	36.4610		-39.728				
CODATA (73) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
60 H1CL(330H20)	36.4610		-39.763				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				

-39.933 + 1.140 = 38.793
CODATA Φ(12.73H20)

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
61 H1CL(500H2O)	36.4610		-39.793				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
62 H1CL(508H2O)	36.4610		-39.794				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
63 H1CL(933H2O)	36.4610		-39.828				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
64 H1CL(1100H2O)	36.4610		-39.836				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
65 H1CL(1500H2O)	36.4610		-39.848				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
66 H1CL(1700H2O)	36.4610		-39.852				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
67 H1CL(3000H2O)	36.4610		-39.873				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
68 H1CL(3300H2O)	36.4610		-39.875				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
69 H1CL(00H2O)	36.4610		-39.933				
CODATA (1975) CL-			+-0.021				
70 H1CL(D:100H2O)	36.4610		-39.489				
CODATA CL- + L2 BASED ON NSRDS-NBS			+-[0.010]				
71 H1CL(D:54.4H2O)	36.4610		-39.284				
CODATA CL- AND L2 (HCL) BASED ON NSRDS/NBS-2			+-[0.010]				
72 H1CL(D:53H2O)	36.4610		-39.276				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
73 H1CL(D:15H2O)	36.4610		-38.145				
CODATA + L2 BASED ON NSRDS/NBS-2			+-0.025				
74 H1CL(D:12.76H2O)	36.4610		-37.856				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
75 H1CL(D:10H2O)	36.4610		-37.291				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
76 H1CL(D:8.51H2O)	36.4610		-36.824				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
77 H1CL(D:8.16H2O)	36.4610		-36.686				
CODATA CL- AND L2 (HCL) BASED ON NSRDS/NBS-2			+-[0.010]				
78 H1CL(D:8.13H2O)	36.4610		-36.671				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
79 H1CL(D:8H2O)	36.4610		-36.621				
CODATA CL- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
80 H1CL104(1000H2O)	100.4586		-30.528				
CL04(A) + PHI(L) FROM NSRDS/NBS-2			+-0.120				
81 H1CL104(D:50H2O)	100.4586		-30.785				
CL04- PLUS L2 BASED ON NSRDS/NBS-2			+-0.120				

All sets 100 H2O from enthalpy and of HCl:100H2O

-39.933 + 0.295 + 0.149 = -39.489

-39.933 + 1.680 + 1.573 = -36.680

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
82 CL102F(G)	86.4502		-8.				
DDW (75).			+-[10.]				
83 BR(G)	79.9040	28.184	26.735	19.694	1.4810	41.803	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.029	+-0.029	+-0.029	+-0.0005	+-0.005	
84 BR-1(A)	79.9040		-29.039	-24.867		19.80	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.036	+-0.045		+-0.05	
85 BR2(LS)	159.8080	0	0	0	5.860	36.379	
CODATA RECOMMENDATIONS (FINAL), 1975. OK VALUE IS FOR BR2(C)					+-0.031	+-0.010	
86 BR2(G)	159.8080	10.923	7.388	0.750	2.324	58.640	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.029	+-0.026	+-0.026	+-0.003	+-0.013	
87 H1BR(G)	80.9120	-6.819	-8.695	-12.770	2.067	47.463	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.043	+-0.041	+-0.041	+-0.001	+-0.008	
88 H1BR(A)	80.9120		-29.039	-24.867		19.80	
CODATA (1975) BR-(A)			+-0.036	+-0.045		+-0.05	
89 H1BR(700H2O)	80.9120		-28.931				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
90 H1BR(1100H2O)	80.9120		-28.950				
CODATA (73) + PHI(L) NSROS-2			+-[0.010]				
91 H1BR(1400H2O)	80.9120		-28.959				
CODATA (73) + PHI(L) NSRDS-2			+-[0.010]				
92 H1BR(1500H2O)	80.9120		-28.962				
CODATA (73) + PHI(L) NSROS-2			+-[0.010]				
93 H1BR(1900H2O)	80.9120		-28.969				
CODATA (73) + PHI(L) NSROS-2			+-[0.010]				
94 H1BR(2000H2O)	80.9120		-28.971				
CODATA (73) + PHI(L) NSROS-2			+-[0.010]				
95 H1BR(2100H2O)	80.9120		-28.972				
CODATA (73) + PHI(L) NSRDS-2			+-[0.010]				
96 H1BR(00H2O)	80.9120		-29.039				
CODATA (1975) BR-(A)			+-0.036				
97 H1BR(D:H1CL+54.4H2O)	80.9120		-28.530				
CODATA BR- AND L2 (HBR) BASED ON NSRDS/NBS-2			+-[0.010]				
98 H1BR(D:H1CL+53H2O)	80.9120		-28.539				
CODATA BR- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.010]				
99 H1BR(D:H1CL+8.16H2O)	80.9120		-26.201				
CODATA BR- AND L2 FOR HBR BASED ON NSRDS/NBS-2			+-[0.010]				
100 H1BR(D:H1CL+8.13H2O)	80.9120		-26.193				
CODATA BR- PLUS L2 BASED ON NSROS/NBS-2			+-[0.010]				
101 I(G)	126.9045	25.613	25.517	16.780	1.4810	43.182	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.010	+-0.010	+-0.012	+-0.0005	+-0.005	
102 I-1(A)	126.9045		-13.60	-12.41		25.50	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.20	+-0.20		+-0.05	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
103 I-(D:H1CL+54.4H20)	126.9045		-13.268				
CODATA + L2 BASED ON NSRDS/NBS-2			+-[0.010]				
104 I2(CS)	253.8090	0	0	0	3.154	27.758	
CODATA RECOMMENDATIONS (FINAL). 1975					+-0.010	+-0.019	
105 I2(G)	253.8090	15.655	14.919	4.627	2.418	62.277	
CODATA RECOMMENDATIONS (FINAL). 1975		+-0.022	+-0.019	+-0.019	+-0.005	+-0.015	
106 I3-(A)	380.7135		-12.40				
CCDATA + VBP(75)			+-[0.10]				
107 H1I(G)	127.9125	6.82	6.30	0.38	2.069	49.350	
CODATA RECOMMENDATIONS (FINAL). 1975		+-0.19	+-0.19	+-0.19	+-0.001	+-0.010	
108 H1I(A)	127.9125		-13.60	-12.41		25.50	
CODATA (1975) I-(A)			+-0.20	+-0.20		+-0.05	
109 H1I(55H20)	127.9125		-13.376				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-0.250				
110 H1I(1400H20)	127.9125		-13.528				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
111 H1I(1900H20)	127.9125		-13.536				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
112 H1I(2000H20)	127.9125		-13.537				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
113 H1I(2300H20)	127.9125		-13.540				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
114 H1I(D:H1CL+54.4H20)	127.9125		-13.265				
CODATA I- AND L2 FOR HI BASED ON NSRDS/NBS-2			+-[0.010]				
115 H1I(D:H1CL+53H20)	127.9125		-13.28				
CODATA I- PLUS L2 BASED ON NSRDS/NBS-2			+-[0.10]				
116 H1I(D:H1CL+8.16H20)	127.9125		-11.220				
CODATA I- AND L2 (HI) BASED ON NSRDS/NBS-2			+-[0.010]				
117 H1I(D:H1CL+8.13H20)	127.9125		-11.202				
CODATA I- PLUS L2 BASED ON NSRDS/NBS-2			+-0.010				
118 S(CS)	32.0600	0	0	0	1.054	7.600	
RHOMBIC					+-0.008	+-0.050	
CODATA TENTATIVE PART V (1975)							
119 S(G)	32.0600	65.662	66.200	56.515	1.591	40.085	
CODATA RECOMMENDATIONS (FINAL). 1975		+-0.060	+-0.060	+-0.060	+-0.001	+-0.008	
120 S2(G)	64.1200	30.636	30.710	18.991	2.182	54.506	
CODATA RECOMMENDATIONS (FINAL). 1975		+-0.072	+-0.072	+-0.072	+-0.002	+-0.012	
121 S102(G)	64.0588	-70.332	-70.939	-71.742	2.521	59.300	
CODATA RECOMMENDATIONS (FINAL). 1975		+-0.048	+-0.048	+-0.048	+-0.003	+-0.014	
122 S104-2(A)	96.0576		-217.400	-177.95		4.50	
CODATA TENTATIVE PART V (1975)			+-0.096	+-0.11		+-0.12	
123 H2S(G)	34.0760		-4.93				
			+-[0.10]				

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
124 H1S104-(A)	97.0656		-212.90	-180.66		28.68	
BASED ON CODATA TENTATIVE VALUES(1975)			+-0.10	+-0.10		+-0.20	
125 H2S104(8.5H2O)	98.0736		-210.09				
CODATA SO4-2 + PHI(L) FROM NBS 270-3			+-[0.10]				
126 H2S104(50H2O)	98.0736		-212.024				
CODATA SO4-2 PLUS PHI(L) FROM NBS 270-3			+-[0.010]				
127 H2S104(59.0H2O)	98.0736		-212.069				
CODATA SO4-2 PLUS PHI(L) FROM NBS 270-3			+-[0.010]				
128 H2S104(71.8H2O)	98.0736		-212.134				
CODATA SO4-2 PLUS PHI(L) FROM NBS 270-3			+-[0.010]				
129 H2S104(110H2O)	98.0736		-212.281				
CODATA SO4-2 + PHI(L) FROM NBS 270-3			+-[0.010]				
130 H2S104(220H2O)	98.0736		-212.503				
CODATA SO4-2 PLUS PHI(L) FROM NBS 270-3			+-[0.010]				
131 H2S104(300H2O)	98.0736		-212.645				
CODATA SO4-2 + PHI(L) FROM NBS 270-3			+-[0.010]				
132 H2S104(D:62H2O)	98.0736		-211.798				
CODATA SO4-2 PLUS L2 FROM YOUNG (UNPUBL)			+-[0.010]				
133 H2S104(D:55H2O)	98.0736		-211.760				
CODATA SO4-2 PLUS L2 FROM YOUNG (UNPUBL)			+-[0.010]				
134 S1F4(G)	108.0536		-188.5				
VBP (1975). USING CODATA VALUE FOR HF			+-[1.0]				
135 S1F6(G)	146.0504		-291.77				
O'HARE ET AL (1966)			+-0.24				
136 SE(CS)	78.9600	0	0	0	1.319	10.14	
ENTROPY FROM NBS TN 270 ROUNDED TO 2 DECIMAL PLACES					+-[0.010]	+-0.10	
137 N(G)	14.0067	112.529	112.973	108.879	1.4810	36.613	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.096	+-0.096	+-0.096	+-0.0005	+-0.005	
138 N2(GS)	28.0134	0	0	0	2.072	45.770	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.001	+-0.006	
139 N103-1(A)	62.0049		-49.56	-26.64		35.12	
CODATA BULL. 10 FOR ION ENTROPY. DHF FROM TN-270-3			+-0.10	+-0.10		+-0.20	
140 N1H3(G)	17.0307	-9.309	-10.980	-3.929	2.401	46.049	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.084	+-0.084	+-0.084	+-0.002	+-0.019	
141 N1H3(2500H2O)	17.0307		-19.123				
CODATA + PHI(L):NSRDS/NBS-2			+-[0.010]				
142 N1H4+(A)	18.0387		-31.850	-18.991		26.57	
			+-0.060	+-0.072		+-0.18	
143 H1N103(A)	63.0129		-49.56	-26.64		35.12	
CODATA BULLETIN 10 FOR ENTROPY DATA			+-0.10	+-0.10		+-0.20	
144 H1N103(27.75H2O)	63.0129		-49.434				
			+-[0.010]				

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP 298
145 H1N103(92H2O)	63.0129		-49.440 +-[0.010]				
146 H1N103(100H2O)	63.0129		-49.440 +-[0.010]				
147 H1N103(1700H2O)	63.0129		-49.496 +-[0.010]				
148 H1N103(D:9.4H2O) NBS270 NO3- PLUS L2 BASED ON NSRDS/NBS-2	63.0129		-48.488 +-[0.010]				
149 H1N103(D:7.54H2O) NBS270 NO3- PLUS L2 BASED ON NSRDS/NBS-2	63.0129		-48.024 +-[0.010]				
150 H1N103(D:7.50H2O) DIFFERENTIAL HEAT OF FORMATION	63.0129		-48.008 +-[0.010]				
151 N1H401H(110H2O) CCDATA (75) + PHI(L) FROM NSRDS/NBS-2	35.0461		-87.670 +-[0.010]				
152 N1H4N103(C) FROM CODATA ION ENTROPY EVALUATION. SEE CODATA BULL. 10.	80.0436		-87.58 +-0.12	-44.16 +-0.12		36.06 +-0.05	
153 N1H4N103(30H2O) COMBINES NH4+(CODATA),NO3-(NBS TN 270-3) AND PHI(L) (NSRDS/NBS-2)	80.0436		-81.945 +-0.100				
154 N1F30(G) DOW (75)	87.0013		-45.5 +-[1.0]				
155 H1N1F2(G) DOW (75)	53.0115		-24. +-[10.]				
156 N1H4CL(C) TAKEN FROM CODATA IONIC ENTROPY EVALUATION: SEE CODATA BULL. 10	53.4917		-75.332 +-0.069	-48.73 +-0.07		22.710 +-0.096	
157 N1H4CL(220H2O) CODATA (75) + PHI(L) FROM NSRDS/NBS-2	53.4917		-71.668 +-[0.010]				
158 N1H4CL(2500H2O) CODATA (75) + PHI(L) FROM NSRDS/NBS-2	53.4917		-71.731 +-[0.010]				
159 N1H4CL(16000H2O) CODATA (75) + PHI(L) FROM NSRDS/NBS-2	53.4917		-71.758 +-[0.010]				
160 N1H4CL104(C) DELTA H FROM LEAST SQUARES SOLUTION OF DATA ON 5 PERCHLORATES	117.4893		-70.46 +-0.15	-20.99 +-0.15		44.02 +-0.05	
161 N1H4BR(C) CALC FROM REFS IN CODATA BULL. 10 (1973) AND CCDATA IONS	97.9427		-64.895 +-0.072	-41.977 +-0.072		26.62 +-0.10	
162 N1H4BR(15000H2O) CODATA + PHI(L) FROM NSRDS/NBS-2	97.9427		-61.058 +-[0.010]				
163 S4N4(C)	184.2668		128.0 +-[1.0]				
164 N1H4H1S104(110H2O) CODATA + DDW (1975)	115.1043		-245.91 +-[0.10]				

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
165 (N1H4)2S104(C) TAKEN FROM CODATA IONIC ENTROPY EVALUATION. SEE CODATA BULL. 10	132.1350		-282.66 +-0.14	-216.01 +-0.14		52.70 +-0.30	
166 (N1H4)2S104(440H20) CODATA +PHI(L)	132.1350		-280.687 +-[0.010]				
167 P(CS) WHITE CODATA TENTATIVE PART V (1975)	30.9738	0	0	0	1.281 +-0.004	9.821 +-0.060	
168 P(C4) P(C4) = CRYSTAL.RED IV	30.9738		-4.2 +-[1.0]				
169 P(G) CODATA TENTATIVE PART V (1975)	30.9738	75.43 +-0.36	75.62 +-0.36	66.92 +-0.36	1.481 +-0.001	38.978 +-0.005	
170 P2(G) CODATA TENTATIVE PART V (1975)	61.9476	34.80 +-0.72	34.37 +-0.72	24.69 +-0.72	2.127 +-0.002	52.099 +-0.010	
171 P4(G) CODATA TENTATIVE PART V (1975)	123.8952	15.880 +-0.096	14.125 +-0.072	5.90 +-0.11	3.370 +-0.057	66.85 +-0.12	
172 P4O10(C,HE) HEXAGONAL CODATA TENTATIVE PART V (1975)	283.8892	-712.05 +-0.24	-719.36 +-0.24	-651.05 +-0.24	8.179 +-0.012	55.21 +-0.19	
173 P1H3(G)	33.9978	3.20 +-[0.10]	1.3 +-[1.0]	3.2 +-[1.0]	2.420 +-[0.010]	50.22 +-[0.10]	8.87 +-[0.10]
174 H3P103(AU)	81.9960		-230.6 +-[1.0]				
175 H3P104(100H20)	97.9954		-308.176 +-[0.010]				
176 P1F3(G) DHF FROM RUDZITIS ET AL (70). S. H-H0 AND CP FROM NBS TN 270-3	87.9690	-227.45 +-[0.10]	-228.8 +-0.4	-223.7 +-0.4	3.092 +-[0.010]	65.28 +-[0.10]	14.03 +-[0.10]
177 P1F5(G) GROSS ET AL (66) AND O'HARE AND HUBBARD (66)	125.9658		-380.8 +-0.4				
178 P101F3(G) RE-EVAL. (VBP-75) FOR DHF. S. H-H0 AND CP FROM NBS TN 270-3	103.9684	-296.59 +-[0.10]	-298.7 +-1.0	-287.1 +-[1.0]	3.369 +-[0.010]	68.11 +-[0.10]	16.41 +-[0.10]
179 P101CL3(G)	153.3322	-132.15 +-[0.10]	-133.48 +-1.00	-122.60 +-1.00	4.273 +-[0.010]	77.76 +-[0.10]	20.30 +-[0.10]
180 C(CS) CODATA RECOMMENDATIONS (FINAL), 1975	12.0110	0	0	0	0.251 +-0.005	1.372 +-0.029	
181 C(G) CODATA RECOMMENDATIONS (FINAL), 1975	12.0110	169.98 +-0.11	171.29 +-0.11	160.44 +-0.11	1.562 +-0.001	37.760 +-0.005	
182 C10(G) CODATA RECOMMENDATIONS (FINAL), 1975	28.0104	-27.201 +-0.041	-26.417 +-0.041	-32.780 +-0.041	2.073 +-0.002	47.217 +-0.008	
183 C102(G) CODATA RECOMMENDATIONS (FINAL), 1975	44.0098	-93.963 +-0.031	-94.051 +-0.031	-94.257 +-0.031	2.238 +-0.002	51.070 +-0.010	
184 C1S(G)	44.0710	55. +-[10.]	56. +-[10.]	44. +-[10.]	2.081 +-[0.010]	50.30 +-[0.10]	7.12 +-[0.10]

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

		FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
185	C1S2(G)	76.1310	27.86 +-[0.10]	28.05 +-[0.10]	16.05 +-[0.10]	2.547 +-[0.010]	56.82 +-[0.10]	10.85 +-[0.10]
186	C1N(G)	26.0177	108. +-[10.]	109. +-[10.]	102. +-[10.]	2.07 +-[0.10]	48.4 +-[1.0]	6.97 +-[0.10]
187	C2N2(G)	52.0354	73.386 +-[0.010]	73.84 +-[0.10]	71.07 +-[0.10]	3.028 +-[0.010]	57.79 +-[0.10]	13.58 +-[0.10]
188	H1C1N(G)	27.0257	32.39 +-[0.10]	32.3 +-[1.0]	29.8 +-[1.0]	2.208 +-[0.010]	48.20 +-[0.10]	8.57 +-[0.10]
189	C1H3N1H2(G)	31.0577		-5.49 +-[0.10]				
190	(C1H3)2N1H(L)	45.0847		-10.5 +-[1.0]				
191	(C1H3)2N1H(G)	45.0847		-4.41 +-[0.10]				
192	(C1H3)3N(G) DDW(75)	59.1117		-5.62 +-[0.10]				
193	SI(CS) CODATA RECOMMENDATIONS (FINAL). 1975	28.0860	0	0	0	0.769 +-0.002	4.496 +-0.019	
194	SI(G) CODATA RECOMMENDATIONS (FINAL). 1975	28.0860	106.5 +-1.9	107.6 +-1.9	96.9 +-1.9	1.804 +-0.001	40.122 +-0.008	
195	SI1O2(C.AL) ALPHA-QUARTZ CODATA RECOMMENDATIONS (FINAL). 1975	60.0848	-216.47 +-0.24	-217.66 +-0.24	-204.66 +-0.24	1.653 +-0.005	9.909 +-0.048	
196	SI1F4(G) CODATA RECOMMENDATIONS (FINAL). 1975	104.0796	-384.67 +-0.20	-385.98 +-0.20	-375.90 +-0.20	3.671 +-0.012	67.555 +-0.096	
197	SI1C2(G)	52.1080		147. +-[10.]				
198	SI2C(G)	68.1830		132. +-[10.]				
199	PB(CS)	207.2000	0	0	0	1.644 +-[0.010]	15.49 +-0.10	
200	PB1O(C2) RED	223.1994		-52.34 +-[0.10]	-45.16 +-[0.10]		15.9 +-[1.0]	10.95 +-[0.10]
201	B(CS) CODATA RECOMMENDATIONS (FINAL). 1975	10.8100	0	0	0	0.292 +-0.002	1.410 +-0.019	
202	B(G) CODATA RECOMMENDATIONS (FINAL). 1975	10.8100	132.6 +-2.9	133.8 +-2.9	123.3 +-2.9	1.509 +-0.001	36.646 +-0.008	
203	B2O3(C) CODATA RECOMMENDATIONS (FINAL). 1975	69.6182	-302.89 +-0.33	-304.37 +-0.33	-285.47 +-0.33	2.223 +-0.010	12.899 +-0.072	15.041 +-[0.024]
204	B1F3(G) CODATA RECOMMENDATIONS (FINAL). 1975	67.8052	-270.83 +-0.19	-271.50 +-0.19	-267.54 +-0.19	2.784 +-0.002	60.782 +-0.024	
205	AL(CS) CODATA RECOMMENDATIONS (FINAL). 1975	26.9815	0	0	0	1.091 +-0.002	6.776 +-0.019	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
206 AL(G)	26.9815	78.23	78.80	69.10	1.654	39.302	5.11
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.96	+-0.96	+-0.96	+-0.001	+-0.007	+-[0.24]
207 AL2O(G)	69.9624		-31.				
			+-[10.]				
208 AL2O3(C,AL)	101.9612	-397.61	-400.50	-378.18	2.394	12.170	18.891
ALPHA-CORUNDUM		+-0.31	+-0.31	+-0.31	+-0.005	+-0.024	+-[0.024]
CODATA RECOMMENDATIONS (FINAL), 1975							
209 AL(O1H)3(AM)	78.0037		-305.				
			+-[10.]				
210 AL1F(G)	45.9799	-62.68	-62.7	-68.8	2.126	51.36	7.63
CODATA + VBP (75)		+-[0.10]	+-1.0	+-1.0	+-[0.010]	+-[0.10]	+-[0.10]
211 AL1F3(C)	83.9767	-359.51	-360.99	-342.04	2.777	15.89	17.949
CODATA TENTATIVE PART V (1975)		+-0.31	+-0.31	+-0.31	+-0.010	+-0.10	+-[0.024]
212 AL1F3(G)	83.9767	-288.51	-289.4	-285.5	3.37	66.2	14.97
FROM ALF3(C) + DH(SUBL) VBP (75)		+-[0.10]	+-1.0	+-1.0	+-[0.10]	+-[1.0]	+-[0.10]
213 AL1CL3(C)	133.3405	-168.02	-168.3	-150.3	4.104	26.45	21.95
CODATA CL- + VBP(75)		+-[0.10]	+-1.0	+-1.0	+-[0.010]	+-[0.10]	+-[0.10]
214 AL1CL3(6OOH2O+H1CL)	133.3405		-246.76				
			+-[0.10]				
215 ZN(CS)	65.3700	0	0	0	1.352	9.950	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.031	
216 ZN(G)	65.3700	31.042	31.171	22.674	1.481	38.450	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.048	+-0.048	+-0.048	+-0.001	+-0.006	
217 ZN+2(A)	65.3700		-36.661	-35.189		-26.20	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.048	+-0.029		+-0.17	
218 ZN1O(C)	81.3694	-83.031	-83.762	-76.599	1.657	10.430	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.072	+-0.065	+-0.072	+-0.010	+-0.096	
219 ZN1S(C)	97.4300		-46.6				
WURTZITE			+-[1.0]				
220 CU(CS)	63.5460	0	0	0	1.196	7.923	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.002	+-0.019	
221 CU(G)	63.5460	80.40	80.69	71.20	1.481	39.743	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.29	+-0.29	+-0.29	+-0.001	+-0.006	
222 CU+2(A)	63.5460		15.70	15.68		-23.21	
CODATA TENTATIVE PART V (1975)			+-0.19	+-0.19		+-0.29	
223 CU1S104(C)	159.6036	-181.93	-184.30	-158.22	4.030	26.10	
CODATA TENTATIVE PART V (1975)		+-0.29	+-0.29	+-0.29	+-0.019	+-0.10	
224 AG(CS)	107.8680	0	0	0	1.373	10.170	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.050	
225 AG(G)	107.8680	67.99	68.09	58.80	1.481	41.320	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.19	+-0.19	+-0.19	+-0.001	+-0.006	
226 AG+(A)	107.8680		25.275	18.425		17.538	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.020	+-0.036		+-0.096	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	. DH0	DH298	DG298	H298 - H0	S298	CP298
227 AG1CL(C)	143.3210	-30.777	-30.370	-26.252	2.876	23.000	
CODATA RECOMMENDATIONS (FINAL), 1975		+-0.024	+-0.020	+-0.020	+-0.010	+-0.048	
228 AG1CL104(C)	207.3186		-7.07				
DELTA H FROM LEAST SQUARES SOLUTION OF DATA ON S PERCHLORATES			+-0.10				
229 AG1BR(C)	187.7720		-24.038	-23.215		25.600	
TAKEN FROM COCATA IONIC ENTROPY EVALUATION: SEE CODATA BULL. 10			+-0.043	+-0.043		+-0.096	
230 AG1I(C)	234.7725		-14.88	-15.94		27.600	
CALCULATED FROM CODATA IONS. SEE CODATA BULL. 10.			+-0.20	+-0.20		+-0.096	
231 AG2S104(C)	311.7936	-169.44	-171.04	-147.80	6.345	48.02	31.45
CALC FROM REFS IN CODATA BULL. 10 (1973)		+-0.11	+-0.11	+-0.11	+-0.020	+-0.10	+-0.10
232 AG1N103(C)	169.8729		-29.718	-7.988		33.68	
CALCULATED FROM REFS. IN CODATA BULL. 10.			+-0.096	+-0.096		+-0.16	
233 AG1N103(1700H20)	169.8729		-24.283				
CODATA AG+ AND PHI(L) NSRDS-2			+-[0.010]				
234 AU(CS)	196.9665	0	0	0	1.436	11.33	
					+-[0.010]	+-0.03	
235 AU(G)	196.9665	87.46	87.5	78.0	1.481	43.115	4.968
		+-[0.10]	+-[1.0]	+-[1.0]	+-[0.010]	+-[0.010]	+-[0.010
236 AU2(G)	393.9330		123.1				
			+-[1.0]				
237 FE(CS)	55.8470	0	0	0	1.073	6.52	
					+-[0.010]	+-0.03	
238 FE+2(A)	55.8470		-21.30				
			+-[0.10]				
239 FE+3(A)	55.8470		-11.60				
			+-[0.10]				
240 FE1CL2(C)	126.7530	-82.27	-81.65	-72.22	3.889	28.19	18.32
CODATA CL- AND NBS 270-3		+-0.10	+-0.10	+-0.10	+-[0.010]	+-0.10	+-[0.10]
241 FE1CL2(AU)	126.7630		-101.20				
CODATA CL- AND NBS 270-3			+-[0.10]				
242 FE1CL3(C)	162.2060	-95.77	-95.42	-79.78	4.710	34.0	23.10
CODATA CL- + NBS 270-3		+-0.10	+-0.10	+-0.10	+-[0.010]	+-0.1	+-[0.10]
243 PT(CS)	195.0900	0	0	0	1.372	9.95	
					+-[0.010]	+-0.05	
244 PT(G)	195.0900	134.90	135.1	124.4	1.572	45.960	6.102
		+-[0.10]	+-[1.0]	+-[1.0]	+-[0.010]	+-[0.010]	+-[0.010
245 PT1C(G)	207.1010		159.9				
DDW(75)			+-[1.0]				
246 MO(CS)	95.9400	0	0	0	1.098	6.85	5.75
					+-[0.010]	+-[0.10]	+-[0.10]
247 MO(G)	95.9400	156.92	157.3	146.4	1.481	43.461	4.968
		+-[0.10]	+-[1.0]	+-[1.0]	+-[0.001]	+-[0.010]	+-[0.010

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
248 TI(CS)	47.9000	0	0	0	1.149 +-[0.010]	7.32 +-0.05	
249 TI(C)	47.9000	0	0	0	1.149 +-[0.010]	7.32 +-0.05	5.98 +-[0.10]
250 TI(G)	47.9000	111.65 +-[0.10]	112.3 +-[1.0]	101.6 +-[1.0]	1.802 +-[0.010]	43.066 +-[0.010]	5.839 +-[0.010]
251 TI102(C) RUTILE	79.8988	-224.6 +-[1.0]	-225.8 +-[1.0]	-212.6 +-[1.0]	2.065 +-[0.010]	12.03 +-[0.10]	13.15 +-[0.10]
252 ZR(CS)	91.2200	0	0	0	1.322 +-[0.010]	9.32 +-0.05	
253 ZR(C)	91.2200	0	0	0	1.322 +-[0.010]	9.32 +-0.05	6.06 +-[0.10]
254 ZR(G)	91.2200	145.19 +-[0.10]	145.5 +-[1.0]	135.4 +-[1.0]	1.629 +-[0.010]	43.32 +-[0.10]	6.37 +-[0.10]
255 HF(CS)	178.4900	0	0	0	1.397 +-[0.010]	10.41 +-0.05	6.15 +-[0.10]
256 HF(C)	178.4900	0	0	0	1.397 +-[0.010]	10.41 +-0.05	6.15 +-[0.10]
257 HF(G)	178.4900	147.92 +-[0.10]	148.0 +-[1.0]	137.8 +-[1.0]	1.481 +-[0.010]	44.642 +-[0.010]	4.972 +-[0.010]
258 HF1C(C)	190.5010		-60.1 +-[1.0]				
259 Y(CS)	88.9059	0	0	0	1.426 +-[0.010]	10.62 +-0.05	
260 Y(G)	88.9059	100.49 +-[0.10]	100.7 +-[1.0]	91.1 +-[1.0]	1.639 +-[0.010]	42.87 +-[0.10]	6.34 +-[0.10]
261 Y1O(G)	104.9053	-9. +-[10.]	-9.3 +-[1.0]	-15.5 +-[1.0]	2.115 +-[0.010]	55.88 +-[0.10]	7.53 +-[0.10]
262 Y1S(G)	120.9659	42. +-[10.]	41.7 +-[1.0]	29.7 +-[1.0]	2.2 +-[1.0]	58. +-[10.]	8.2 +-[1.0]
263 Y1SE(G) DDW (75)	167.8659	51.46 +-[0.10]	51.0 +-1.0	38.8 +-1.0	2.29 +-[0.10]	61.6 +-[1.0]	8.5 +-[1.0]
264 SM(CS)	150.4000	0	0	0	1.81 +-[0.10]	16.63 +-[0.10]	7.06 +-[0.10]
265 SM(G)	150.4000	49.26 +-[0.10]	49.4 +-[1.0]	41.3 +-[1.0]	1.953 +-[0.010]	43.722 +-[0.010]	7.26 +-[0.10]
266 ND(CS)	144.2400	0	0	0	1.73 +-[0.10]	17.1 +-[1.0]	6.56 +-[0.10]
267 ND(G)	144.2400	78.53 +-[0.10]	78.3 +-[1.0]	69.9 +-[1.0]	1.498 +-[0.010]	45.243 +-[0.010]	5.28 +-[0.10]
268 ND1O(G)	160.2394	-30.2 +-[1.0]	-30.9 +-[1.0]		2.068 +-[0.010]		
269 CE(CS)	140.1200	0	0	0	1.8 +-[1.0]	17.2 +-[1.0]	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
270 CE(G)	140.1200		101. +-[10.]				
271 CE1S(G)	172.1800		31.4 +-[1.0]				
272 CE1AU(G)	337.0865		109.2 +-[1.0]				
273 LA(CS)	138.9055	0	0	0	1.59 +-0.05	13.6 +-0.6	
274 LA(G)	138.9055		103.0 +-[1.0]				
275 LA1O(G)	154.9049		-29.01 +-[0.10]				
* 276 U(CS)	238.0290	0	0	0	1.521 +-0.005	11.998 +-0.048	
CODATA TENTATIVE PART V (1975)							
* 277 U(G)	238.0290	128.1 +-1.9	128.1 +-1.9	117.4 +-1.9	1.554 +-0.001	47.725 +-0.010	
CODATA TENTATIVE PART V (1975)							
* 278 U1O2(C)	270.0278	-258.41 +-0.24	-259.32 +-0.24	-246.63 +-0.24	2.696 +-0.005	18.411 +-0.048	
CODATA TENTATIVE PART V (1975)							
* 279 U1O2+2(A)	270.0278		-243.59 +-0.60	-227.70 +-0.72		-23.49 +-0.96	
CODATA TENTATIVE PART V (1975)							
* 280 U1O3(C,GA)	286.0272	-291.47 +-0.48	-292.50 +-0.48	-274.02 +-0.48	3.609 +-0.019	23.571 +-0.096	
GAMMA							
CODATA TENTATIVE PART V (1975)							
* 281 U3O8(C)	842.0822	-851.74 +-0.60	-854.40 +-0.60	-805.35 +-0.60	10.215 +-0.024	67.53 +-0.12	
CODATA TENTATIVE PART V (1975)							
* 282 TH(CS)	232.0381	0	0	0	1.556 +-0.005	12.761 +-0.096	
CODATA TENTATIVE PART V (1975)							
* 283 TH(G)	232.0381	143.0 +-1.4	142.9 +-1.4	133.2 +-1.4	1.481 +-0.001	45.425 +-0.010	
CODATA TENTATIVE PART V (1975)							
* 284 TH1O2(C)	264.0369	-292.02 +-0.84	-293.12 +-0.84	-279.35 +-0.84	2.524 +-0.005	15.590 +-0.048	
CODATA TENTATIVE PART V (1975)							
285 BE(CS)	9.0122	0	0	0	0.466 +-0.005	2.271 +-0.019	
CODATA TENTATIVE PART V (1975)							
286 BE(G)	9.0122	76.4 +-1.2	77.4 +-1.2	68.4 +-1.2	1.481 +-0.001	32.544 +-0.005	
CODATA TENTATIVE PART V (1975)							
287 BE1O(C)	25.0116	-144.81 +-0.60	-145.65 +-0.60	-138.65 +-0.60	0.678 +-0.002	3.291 +-0.010	
CODATA TENTATIVE PART V (1975)							
288 MG(CS)	24.3050	0	0	0	1.195 +-0.007	7.811 +-0.024	
CODATA TENTATIVE PART V (1975)							
289 MG(G)	24.3050	34.87 +-0.19	35.16 +-0.19	26.90 +-0.19	1.481 +-0.001	35.501 +-0.005	
CODATA TENTATIVE PART V (1975)							
290 MG+2(A)	24.3050		-111.7 +-0.2	-108.9 +-0.4		-32.7 +-1.0	
CODATA TENTATIVE PART V (1975)							

*These values are subject to revision in the IAEA review.

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
291 MG1O(C)	40.3044	-142.763	-143.76	-136.049	1.233	6.441	
CODATA TENTATIVE PART V (1975)		+-0.072	+-0.07	+-0.072	+-0.005	+-0.036	
292 MG1F2(C)	62.3018	-267.76	-268.69	-256.00	2.371	13.67	
CODATA TENTATIVE PART V (1975)		+-0.29	+-0.29	+-0.29	+-0.014	+-0.10	
293 CA(CS)	40.0800	0	0	0	1.370	9.94	
CODATA TENTATIVE PART V (1975)					+-0.010	+-0.10	
294 CA(G)	40.0800	42.39	42.50	34.43	1.481	36.992	
CODATA TENTATIVE PART V (1975)		+-0.19	+-0.19	+-0.19	+-0.001	+-0.005	
295 CA+2(A)	40.0800		-129.71	-132.24		-12.79	
CODATA TENTATIVE PART V (1975)			+-0.29	+-0.36		+-0.48	
296 CA1C(C)	56.0794	-151.00	-151.79	-144.24	1.613	9.11	10.060
CODATA TENTATIVE PART V (1975)		+-0.22	+-0.22	+-0.22	+-0.014	+-0.10	+-[0.024
297 CA1F(G)	59.0784	-65.76	-66.0	-72.2	2.181	54.8	8.03
CODATA + VBP(75)		+-1.00	+-1.0	+-1.0	+-[0.010]	+-[1.0]	+-[0.10]
298 CA1F2(C)	78.0768		-293.8	-281.3		16.46	16.02
CODATA + VBP(75)			+-0.1	+-0.1		+-0.08	+-[0.10]
299 CA1F2(G)	78.0768	-188.6	-189.1	-191.2	3.025	65.55	12.25
CAF2(C) + DH(SUBL). VBP(75)		+-1.0	+-1.0	+-1.0	+-[0.010]	+-[0.10]	+-[0.10]
300 CA1CL2(400H2O)	110.9860		-209.052				
CODATA CL- AND CA+2 + NBS TN 270 FOR DILUTIONS			+-[0.010]				
301 CA1S104(2500H2O)	136.1376		-346.4				
CODATA + NBS TN 270-6			+-[1.0]				
302 CA(N103)2(A)	164.0898		-228.83	-185.52		57.45	
CODATA +270-3 DELTA HF NO3-			+-0.30	+-0.30		+-0.50	
303 CA1SI103(C)	116.1642		-390.70	-370.32		19.58	20.38
WOLLASTONITE			+-0.10	+-0.10		+-0.20	+-[0.10]
CONSISTENT WITH CODATA (75) SIO2 AND CAO							
304 SR(CS)	87.6200		0	0		12.5	
ESTIMATED ENTROPY						+-1.0	
305 SR1F2(C)	125.6168	-293.32	-292.3	-280.0	3.125	19.63	16.73
CODATA F- AND VBP(75)		+-[0.10]	+-[1.0]	+-[1.0]	+-[0.010]	+-[0.10]	+-[0.10]
306 BA(CS)	137.3400	0	0	0	1.65	14.9	
S AND CP MEASURED BY FURUKAWA ET AL. (71).					+-[0.10]	+-0.1	
307 BA1F2(C)	175.3368	-290.19	-290.5	-278.5	3.452	23.03	17.02
CODATA F- AND VBP (74)		+-[0.10]	+-[1.0]	+-[1.0]	+-[0.010]	+-[0.10]	+-[0.10]
308 LI(CS)	6.9410	0	0	0	1.107	6.960	
CODATA RECOMMENDATIONS (FINAL). 1975					+-0.010	+-0.048	
309 LI1(G)	6.9410		38.09				
HULTGREN AND DDW(75)			+-[0.10]				
310 LI+(A)	6.9410		-66.552	-69.935		2.701	
CODATA RECOMMENDATIONS (FINAL). 1975			+-0.022	+-0.022		+-0.084	
311 LI2O(C)	29.8814		-142.90				
CODATA + VBP(75)			+-[0.10]				

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	-DH0	DH298	DG298	H298 - H0	S298	CP298
312 LI1O1H(C)	23.9484		-116.489	-105.507		10.229	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.038	+-0.038		+-0.036	
313 LI1C1H:H2O(C)	41.9638		-188.824	-163.272		17.070	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.048	+-0.048		+-0.048	
314 LI1F(C)	25.9394		-147.75	-141.00		8.521	
TAKEN FROM CODATA IONIC ENTROPY EVALUATION: SEE CODATA BULL. 10			+-0.16	+-0.16		+-0.036	
315 LI1CL(C)	42.3940		-97.65	-91.85		14.180	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.16	+-0.16		+-0.048	
316 LI1CL(60H2O)	42.3940		-106.198				
CODATA IONS AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
317 LI1CL104(C)	106.3916		-90.72				
DELTA H FROM LEAST SQUARES SOLUTION OF DATA ON 5 PERCHLORATES CODATA AND PHI(L) NSRDS/NBS-2			+-0.15				
318 LI1N103(100H2O)	68.9459		-115.935				
CODATA + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
319 LI1N103(160H2O)	68.9459		-115.962				
CODATA + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
320 NA(CS)	22.9898	0	0	0	1.544	12.261	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.048	
321 NA(G)	22.9898		25.60				
HULTGREN AND DDW (75)			+-[0.10]				
322 NA+(A)	22.9898		-57.433	-62.593		13.960	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.016	+-0.016		+-0.048	
323 NA2O(C)	61.9790		-99.8				
CODATA + VBP(75)			+-[1.0]				
324 NA2O2(C)	77.9784		-122.40				
DDW(75)			+-[0.10]				
325 NA1O1H(C)	39.9972	-100.682 +-0.030	-101.770 +-0.020	-90.750 +-0.030	2.506 +-0.010	15.405 +-0.020	14.23 +-0.02
CALC FROM REFS IN CODATA BULL. 10 AND CODATA IONS							
326 NA1C1H(29H2O)	39.9972		-112.401				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
327 NA1O1H(110H2O)	39.9972		-112.295				
CODATA+ PHI(L) NSRDS-2			+-[0.010]				
328 NA1O1H(150H2O)	39.9972		-112.292				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
329 NA1O1H(200H2O)	39.9972		-112.289				
CODATA + PHI(L) NSRDS-2			+-[0.010]				

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP298
330 NA101H(220H2O)	39.9972		-112.290				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
331 NA101H(400H2O)	39.9972		-112.300				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
332 NA101H(500H2O)	39.9972		-112.306				
CODATA +PHI(L) NSRDS-2			+-[0.010]				
333 NA101H(550H2O)	39.9972		-112.303				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
334 NA101H(750H2O)	39.9972		-112.318				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
335 NA101H:H2O(C)	58.0126	-172.674	-175.605	-150.474	3.724	23.785	21.54
CALC FROM REFS IN CODATA BULL. 10 AND CODATA IONS		+-0.030	+-0.020	+-0.030	+-0.010	+-0.020	+-0.02
336 NA1F(C)	41.9882		-137.80	-130.58		12.261	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.16	+-0.16		+-0.019	
337 NA1F(107H2O)	41.9882		-136.474				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
338 NA1F(400H2O)	41.9882		-136.473				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
339 NA1CL(C)	58.4428		-98.293	-91.833		17.239	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.026	+-0.026		+-0.048	
340 NA1CL(60H2O)	58.4428		-97.379				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
341 NA1CL(220H2O)	58.4428		-97.282				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
342 NA1CL(330H2O)	58.4428		-97.278				
CODATA + PHI(L) NSRDS-2			+-[0.010]				
343 NA1CL(550H2O)	58.4428		-97.282				
CODATA (75) + PHI(L) NSRDS/NBS-2			+-[0.010]				
344 NA1CL104(C)	122.4404		-91.32				
DELTA H FROM LEAST SQUARES SOLUTION OF DATA ON 5 PERCHLORATES			+-0.10				
345 NA1BR(C)	102.8938		-86.329	-83.437		20.750	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.043	+-0.048		+-0.096	
346 NA1I(C)	149.8943		-69.211	-68.439		23.549	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.036	+-0.036		+-0.048	
347 NA2S(C)	78.0396		-90.3				
DDW (75)			+-[1.0]				
348 NA2S104(C)	142.0372	-328.94	-331.69	-303.55	5.546	35.751	30.60
STABLE FORM IS (C,V). TAKEN FROM CODATA EVAL. FOR SO4-2 SEE BULL. 10.		+-0.10	+-0.10	+-0.10	+-0.010	+-0.020	+-0.02

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM. IN KCAL/M & CAL/M.K

	FORMULA WT	.DH0	DH298	DG298	H298 - H0	S298	CP298
349 NA2S104(300H20)	142.0372		-332.109				
CODATA + DDW(75)			+-[0.010]				
350 NA2S104(400H20)	142.0372		-332.072				
CODATA + DDW(1975)			+-[0.010]				
351 NA2S104:10H20(C)	322.1912		-1034.40	-871.67		141.41	
CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.11	+-0.11		+-0.30	
AND CODATA IONS							
352 NA1H1S104(110H20)	120.0554		-270.88				
DDW (75)			+-[0.10]				
353 NA1N103(C)	84.9947		-111.86	-87.77		27.85	
TAKEN FROM CODATA IONIC ENTROPY			+-0.10	+-0.10		+-0.16	
EVALUATION: SEE CODATA BULL. 10							
354 NA1N103(27.75H20)	84.9947		-107.717				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
355 NA1N103(160H20)	84.9947		-107.071				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
356 K(CS)	39.1020	0	0	0	1.694	15.459	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.048	
357 K(G)	39.1020		21.33				
HULTGREN			+-[0.10]				
358 K+(A)	39.1020		-60.270	-67.512		24.149	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.024	+-0.024		+-0.060	
359 K20(C)	94.2034		-86.4				
CODATA + VBP(75)			+-[1.0]				
360 K1F(C)	58.1004		-136.18	-129.09		15.911	
CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.16	+-0.16		+-0.048	
AND CODATA IONS							
361 K1F(107H20)	58.1004		-140.258				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
362 K1F(400H20)	58.1004		-140.300				
CODATA (75) + PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
363 K1CL(C)	74.5550		-104.318	-97.648		19.739	
CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.033	+-0.033		+-0.048	
AND CODATA IONS							
364 K1CL104(C)	138.5526		-103.17	-72.19		36.22	
DELTA H FROM LEAST SQUARES SOLUTION OF			+-0.08	+-0.08		+-0.05	
DATA ON 5 PERCHLORATES							
365 K1BR(C)	119.0060		-94.040	-90.841		22.921	
CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.043	+-0.043		+-0.048	
AND CODATA IONS							
366 K1BR103(C)	167.0042		-85.94	-64.62		35.65	
BASED ON CODATA VALUE OF DELTA HF FOR			+-0.07	+-0.07		+-0.10	
K1BR(C)							

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

	FORMULA WT	DH0	DH298	DG298	H298 - H0	S298	CP 298
367 K1I(C)	166.0065		-78.728	-77.543		25.361	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.038	+-0.038		+-0.048	
368 K2S104(C)	174.2616		-343.62	-315.42		41.960	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.13	+-0.13		+-0.084	
369 K1N103(C)	101.1069		-118.18	-94.31		31.81	
CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.10	+-0.10		+-0.16	
370 RB(CS)	85.4678	0	0	0	1.790	18.351	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.072	
371 RB+(A)	85.4678		-60.019	-67.784		28.791	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.031	+-0.031		+-0.096	
372 RB1F(C)	104.4662		-133.928				
CODATA AND DH(SOLN) FROM NSRDS/NBS-2			+-[0.010]				
373 RB1CL(C)	120.9208		-103.972	-97.383		22.899	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.048	+-0.048		+-0.036	
374 RB1CL(10000H2O)	120.9208		-99.923				
CODATA AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
375 RB1BR(C)	165.3718		-94.29	-91.23		26.27	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.11	+-0.11		+-0.20	
376 RB2S104(C)	266.9932		-343.19	-314.83		47.19	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.14	+-0.14		+-0.10	
377 CS(CS)	132.9055	0	0	0	1.843	20.370	
CODATA RECOMMENDATIONS (FINAL), 1975					+-0.005	+-0.096	
378 CS+(A)	132.9055		-61.673	-69.72		31.750	
CODATA RECOMMENDATIONS (FINAL), 1975			+-0.031	+-0.03		+-0.096	
379 CS1F(C)	151.9039		-133.013				
CODATA AND DH(SOLN) FROM NSRDS/NBS-2			+-[0.010]				
380 CS1CL(C)	168.3585		-105.805	-98.996		24.180	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.048	+-0.048		+-0.048	
381 CS1CL(10000H2O)	168.3585		-101.578				
CODATA IONS AND PHI(L) FROM NSRDS/NBS-2			+-[0.010]				
382 CS1CL104(C)	232.3561					41.90	
REINTEGRATION OF PITZER, SMITH AND LATIMER(1938)						+-0.10	
383 CS1BR(C)	212.8095		-96.972	-93.461		26.781	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.067	+-0.067		+-0.096	
384 CS1I(C)	259.8100		-83.20	-81.73		29.300	
CALC FROM REFS IN CODATA BULL. 10 (1973) AND CODATA IONS			+-0.21	+-0.21		+-0.096	

CODATA SELECTIONS (1975) AND VALUES COMPATIBLE WITH THEM, IN KCAL/M & CAL/M.K

		FORMULA WT	.DH0	DH298	DG298	H298 - H0	S298	CP298
385	CS2S104(C)	361.8686		-344.86	-316.32		50.650	
	CALC FROM REFS IN CODATA BULL. 10 (1973)			+-0.14	+-0.14		+-0.060	
	AND CODATA IONS							
CPDS.	50 51 HAVE SAME PSEUDO MW.	57.5202	57.5212					
CPDS.	61 62 HAVE SAME PSEUDO MW.	57.7308	57.7315					

TOTAL COMPOUNDS 386

NBS-114A (REV. 7-73)

U.S. DEPT. OF COMM. BIBLIOGRAPHIC DATA SHEET	1. PUBLICATION OR REPORT NO. NBSIR 75-968	2. Gov't Accession No.	3. Recipient's Accession No.

4. TITLE AND SUBTITLE

SELECTED THERMOCHEMICAL DATA COMPATIBLE WITH THE CODATA RECOMMENDATIONS

5. Publication Date: January 1976

6. Performing Organization Code

7. AUTHOR(S): V. B. Parker, D. D. Wagman, D. Garvin

8. Performing Organ. Report No. NBSIR 75-968

9. PERFORMING ORGANIZATION NAME AND ADDRESS

NATIONAL BUREAU OF STANDARDS
DEPARTMENT OF COMMERCE
WASHINGTON, D.C. 20234

10. Project/Task/Work Unit No. 3165151

11. Contract/Grant No.

12. Sponsoring Organization Name and Complete Address *(Street, City, State, ZIP)*

National Bureau of Standards
Department of Commerce
Washington, DC 20234

13. Type of Report & Period Covered: Interim

14. Sponsoring Agency Code

15. SUPPLEMENTARY NOTES

16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

Selected thermochemical properties data at 298.15 K are given for 384 substances. The data are compatible with the current recommendations of the CODATA Task Group on Key Values for Thermodynamics. The set of values provided here is suitable for use as auxiliary data in evaluations of the thermochemical properties of compounds of the actinide elements. Rules used in the conversion of units and the rounding of numbers are stated.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)* CODATA compatible values; enthalpies of formation; entropy; gibbs energy of formation; selected thermodynamic values; thermodynamic properties

18. AVAILABILITY

[X] Unlimited

[ ] For Official Distribution. Do Not Release to NTIS

[ ] Order From Sup. of Doc., U.S. Government Printing Office Washington, D.C. 20402, SD Cat. No. C13

[X] Order From National Technical Information Service (NTIS) Springfield, Virginia 22151

19. SECURITY CLASS (THIS REPORT)	21. NO. OF PAGES
UNCLASSIFIED	34
20. SECURITY CLASS (THIS PAGE)	22. Price
UNCLASSIFIED	$4.00

USCOMM-DC 29042-P74