Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Aluminum			
Al	s	0	0	6.77	NBS
Al_2O_3	Corundum	−378.2	−400.5	12.2	NBS
AlOOH	Boehmite	−218.2	−236.0	11.6	NBS
$Al(OH)_3$	Gibbsite	−273.4	−306.3	16.8	NBS
$Al(OH)_3$	Amorphous	−271.9	−304.9	17	Latimer
$Al_2Si_2O_5(OH)_4$	Kaolinite	−903.0	−979.6	48.5	NBS
Al^{3+}	aq	−116.0	−127.0	−76.9	NBS
$Al(OH)_4^-$	aq	−310.2	−356.2	28.0	NBS
		Arsenic			
As	Metallic	0	0	8.4	NBS
As	g	+62.4	+72.3	41.6	NBS
As_4O_6	Claudetite	−275.8	−313.0	56	NBS
As_2O_5	s	−187.0	−221.1	25.2	NBS
AsH_3	g	+16.5	+15.9	53.2	NBS
H_3AsO_3	aq	−152.9	−177.4	46.6	NBS
H_3AsO_4	aq	−183.1	−215.7	44	NBS
As_2S_3	Orpiment	−40.3	−40.4	39.1	NBS
$H_2AsO_3^-$	aq	−140.4	−170.8	26.4	NBS
AsO_4^{3-}	aq	−155.0	−212.3	−38.9	NBS
		Barium			
Ba	s	0	0	16.0	RW
BaO	s	−132.0	−139.1	16.8	RW
BaF_2	s	−273.6	−286.0	23.0	KE
BaS	s	−104.5	−106.0	18.7	KE, KK
$BaSO_4$	Barite	−325.3	−352.1	31.6	RW
$BaCO_3$	Witherite	−278.4	−297.5	26.8	RW
$BaSiO_3$	s	−368.1	−388.7	26.8	KE, K62
Ba^{2+}	aq	−134.0	−128.7	3	Latimer
		Boron			
B	s	0	0	1.40	NBS
B_2O_3	s	−285.3	−304.2	12.9	NBS
H_3BO_3	s	−231.6	−261.6	21.2	NBS
$H_4BO_4^-$	aq	−275.7	−321.2	24.5	NBS
		Calcium			
Ca	s	0	0	9.95	RW
CaO	s	−144.4	−151.8	9.5	RW
$Ca(OH)_2$	Portlandite	−214.7	−235.6	19.9	RW
CaF_2	Fluorite	−280.1	−292.6	16.4	Nordstrom
CaS	s	−113.1	−114.3	13.5	RW
$CaCO_3$	Calcite	−269.9	−288.6	22.2	RW
$CaCO_3$	Aragonite	−269.7	−288.7	21.2	RW
$CaMg(CO_3)_2$	Dolomite	−518.7	−557.6	37.1	RW
$CaSO_4$	Anhydrite	−316.5	−343.3	25.5	RW
$CaSO_4 \cdot 2H_2O$	Gypsum	−430.1	−484.0	46.4	RW
$Ca_3(PO_4)_2$	Whitlockite	−932.8	−986.2	57.6	RW
$CaSiO_3$	Wollastonite	−370.3	−390.6	19.6	RW
$CaAl_2Si_2O_8$	Anorthite	−955.6	−1009.3	48.5	RW
$CaMgSi_2O_6$	Diopside	−725.8	−767.4	34.2	RW
Ca^{2+}	aq	−132.3	−129.7	−12.7	Nordstrom

Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Carbon			
C	Graphite	0	0	1.37	RW
C	Diamond	0.69	0.45	0.57	RW
CH_4	g	−12.13	−17.88	44.49	NBS
C_2H_6	g	−7.86	−20.24	54.85	NBS
C_3H_8	g	−5.61	−24.82	64.51	NBS
C_4H_{10}	g	−4.10	−30.15	74.12	NBS
C_2H_4	g	+16.28	+12.49	52.45	NBS
C_6H_6	l	+30.99	+19.82	64.34	NBS
CO	g	−32.78	−26.42	47.22	NBS
CO_2	g	−94.25	−94.05	51.06	NBS
H_2CO_3	aq	−148.94	−167.22	44.8	NBS
HCO_3^-	aq	−140.26	−165.39	21.8	NBS
CO_3^{2-}	aq	−126.17	−161.84	−13.6	NBS
		Chlorine			
Cl_2	g	0	0	53.29	NBS
HCl	g	−22.8	−22.1	44.65	NBS
Cl^-	aq	−31.4	−39.95	13.5	NBS
		Copper			
Cu	s	0	0	7.92	NBS
Cu_2O	Cuprite	−34.9	−40.3	22.3	NBS
CuO	Tenorite	−31.0	−37.6	10.2	NBS
$Cu(OH)_2$	s	−85.3	−106.1	19	Latimer
CuCl	s	−28.7	−32.8	20.6	NBS
Cu_2S	Chalcocite	−20.6	−19.0	28.9	NBS
CuS	Covellite	−12.8	−12.7	15.9	NBS
$Cu_2(OH)_2CO_3$	Malachite	−213.6	−251.3	44.5	NBS
Cu^+	aq	+12.0	+17.1	9.7	NBS
Cu^{2+}	aq	+15.7	+15.5	−23.8	NBS
$CuCl_2^-$	aq	−58.1	−66.3		Rose
		Fluorine			
F_2	g	0	0	48.44	NBS
HF	g	−65.3	−64.8	41.5	NBS
HF	aq	−71.0	−76.5	21.2	NBS
F^-	aq	−66.4	−79.1	−2.7	Nordstrom
		Gold			
Au	s	0	0	11.33	NBS
AuCl	s	−3.6	−8.3	22.2	KEA
$AuCl_3$	s	−10.8	−27.5	35.4	KEA
Au^+	aq	+39.0			Latimer
Au^{3+}	aq	+103.6			Latimer
$AuCl_2^-$	aq	−36.1			NBS
$AuCl_4^-$	aq	−56.2	−77.0	63.8	NBS
		Hydrogen			
H_2	g	0	0	31.21	NBS
H^+	aq	0	0	0	

Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Iron			
Fe	s	0	0	6.52	NBS
$Fe_{0.947}O$	Wüstite	−58.6	−63.6	13.7	NBS
Fe_3O_4	Magnetite	−242.7	−267.3	35.0	NBS
Fe_2O_3	Hematite	−177.4	−197.0	20.9	NBS
$Fe(OH)_2$	s	−116.3	−136.0	21	NBS
$Fe(OH)_3$	Amorphous	−166.5	−196.7	25.5	NBS
FeOOH	Goethite	−116.4	−133.6	14.4	Langmuir(2), NBS
FeS	Troilite	−24.0	−23.9	14.4	NBS
FeS_2	Pyrite	−39.9	−42.6	12.7	NBS
$FeCO_3$	Siderite	−159.4	−177.0	22.2	NBS
Fe_2SiO_4	Fayalite	−329.6	−353.7	34.7	NBS
Fe^{2+}	aq	−18.9	−21.3	−32.9	NBS
Fe^{3+}	aq	−1.1	−11.6	−75.5	NBS
		Lead			
Pb	s	0	0	15.49	NBS
Pb	g	+38.7	+46.6	41.9	NBS
PbO	Red	−45.2	−52.3	15.9	NBS
PbO	g	+5.0	+10.1	57.3	C, KK
PbO_2	s	−52.0	−66.3	16.4	NBS
$Pb(OH)_2$	s	−100.6			NBS
$PbCl_2$	Cotunnite	−75.1	−85.9	32.5	NBS
PbS	Galena	−23.6	−24.0	21.8	NBS
$PbSO_4$	Anglesite	−194.4	−219.9	35.5	NBS
$PbCO_3$	Cerussite	−149.5	−167.1	31.3	NBS
$PbSiO_3$	s	−253.9	−273.8	26.2	NBS
Pb^{2+}	aq	−5.8	−0.4	2.5	NBS
$Pb(OH)_3^-$	aq	−137.6			NBS
		Magnesium			
Mg	s	0	0	7.81	RW
MgO	Periclase	−136.1	−143.8	6.4	RW
$Mg(OH)_2$	Brucite	−199.5	−221.2	15.1	RW
MgF_2	Sellaite	−256.0	−268.7	13.7	RW
MgS	s	−82.6	−83.0	10.2	KEA
$MgCO_3$	Magnesite	−246.1	−266.1	15.7	RW
$MgCO_3 \cdot 3H_2O$	Nesquehonite	−412.7			Langmuir(1)
$MgSiO_3$	Clinoenstatite	−349.4	−370.1	16.2	RW
Mg_2SiO_4	Forsterite	−491.9	−520.4	22.8	RW
Mg^{2+}	aq	−108.8	−111.5	−32.7	Langmuir(1)
		Manganese			
Mn	s	0	0	7.65	NBS
MnO	Manganosite	−86.7	−92.1	14.3	NBS
Mn_3O_4	Hausmannite	−306.7	−331.7	37.2	NBS
Mn_2O_3	s	−210.6	−229.2	26.4	NBS
MnO_2	Pyrolusite	−111.2	−124.3	12.7	NBS
$Mn(OH)_2$	Precipitate	−147.0	−166.2	23.7	NBS

Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Potassium			
$KAlSi_3O_8$	Microcline	−892.8	−946.3	52.5	RW
$KAlSi_2O_6$	Leucite	−681.6	−721.7	44.1	RW
$KAl_3Si_3O_{10}(OH)_2$	Muscovite	−1330.1	−1421.2	69.0	RW
K^+	aq	−67.3	−60.0	24.2	Latimer, K62
		Silicon			
Si	s	0	0	4.50	RW
SiO_2	α-Quartz	−204.6	−217.6	9.88	RW
SiO_2	α-Cristobalite	−204.1	−216.9	10.38	RW
SiO_2	α-Tridymite	−204.1	−216.9	10.50	RW
SiO_2	Glass	−203.3	−215.9	11.33	RW
$SiCl_4$	g	−147.5	−157.0	79.0	NBS
SiF_4	g	−375.9	−386.0	67.5	NBS
SiH_4	g	+13.6	+8.2	48.9	NBS
H_4SiO_4	aq	−312.5	−349.1	43	Siever, NBS
		Silver			
Ag	s	0	0	10.17	NBS
Ag_2O	s	−2.7	−7.4	29.0	NBS
AgCl	Cerargyrite	−26.2	−30.4	23.0	NBS
AgF	s	−44.2	−48.5	20.0	KEA
Ag_2S	Acanthite	−9.7	−7.8	34.4	NBS
Ag^+	aq	+18.4	+25.2	17.4	NBS
$AgCl_2^-$	aq	−51.1	−58.2	55.3	Rose, NBS
		Sodium			
Na	s	0	0	12.24	RW
NaCl	Halite	−91.8	−98.3	17.2	RW
Na_2SiO_3	s	−349.8	−372.2	27.2	K62, KK
$NaAlSi_3O_8$	Low albite	−884.0	−937.1	50.2	RW
$NaAlSiO_4$	Nepheline	−469.7	−497.0	29.7	RW
Na^+	aq	−62.5	−57.3	14.0	Latimer, KK
		Strontium			
Sr	s	0	0	12.5	RW
SrO	s	−137.3	−144.4	13.0	RW
$SrSO_4$	Celestite	−319.8	−346.6	28.2	RW
$SrCO_3$	Strontianite	−275.5	−294.6	23.2	RW
$SrSiO_3$	s	−369.7	−389.8	28.5	K62
Sr^{2+}	aq	−133.2	−130.4	−9.4	Latimer
		Sulfur			
S	Orthorhombic	0	0	7.60	NBS
S_2	g	+18.96	+30.68	54.51	NBS
H_2S	g	−8.02	−4.93	49.16	NBS
H_2S	aq	−6.66	−9.5	29	NBS
SO_2	g	−71.75	−70.94	59.30	NBS
SO_3	g	−88.69	−94.58	61.34	NBS
S^{2-}	aq	+20.5	+7.9	−3.5	NBS
HS^-	aq	+2.88	−4.2	15.0	NBS
SO_4^{2-}	aq	−177.97	−217.32	4.8	NBS
HSO_4^-	aq	−180.69	−212.08	31.5	NBS

Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Manganese			
MnS	Alabandite	−52.2	−51.2	18.7	NBS
$MnCO_3$	Rhodochrosite	−195.2	−213.7	20.5	NBS
$MnSiO_3$	Rhodonite	−296.5	−315.7	21.3	NBS
Mn_2SiO_4	Tephroite	−390.1	−413.6	39.0	NBS
Mn^{2+}	aq	−54.5	−52.8	−17.6	NBS
MnO_4^-	aq	−106.9	−129.4	45.7	NBS
		Mercury			
Hg	l	0	0	18.17	NBS
Hg	g	+7.6	+14.7	41.8	NBS
HgO	Red	−14.0	−21.7	16.8	NBS
Hg_2Cl_2	Calomel	−50.4	−63.4	46.0	NBS
HgS	Cinnabar	−12.1	−13.9	19.7	NBS
HgS	Metacinnabar	−11.4	−12.8	21.1	NBS
Hg_2^{2+}	aq	+36.7	+41.2	20.2	NBS
Hg^{2+}	aq	+39.3	+40.9	−7.7	NBS
$HgCl_4^{2-}$	aq	−106.8	−132.4	70	NBS
HgS_2^{2-}	aq	+10.0			NBS
		Molybdenum			
Mo	s	0	0	6.85	NBS
MoO_3	s	−159.7	−178.1	18.6	NBS
MoS_2	Molybdenite	−54.0	−56.2	15.0	NBS
$CaMoO_4$	Powellite	−344.0	−369.5	29.3	RW
		Nickel			
Ni	s	0	0	7.14	NBS
NiO	s	−50.6	−57.3	9.1	NBS
$Ni(OH)_2$	s	−106.9	−126.6	21	NBS
NiS	s	−19.0	−19.6	12.7	NBS
$NiCO_3$	s	−146.4			NBS
Ni^{2+}	aq	−10.9	−12.9	−30.8	NBS
		Nitrogen			
N_2	g	0	0	45.77	NBS
N_2O	g	+24.9	+19.6	52.5	NBS
NO	g	+20.7	+21.6	50.3	NBS
NH_3	g	−3.9	−11.0	46.0	NBS
NH_4OH	aq	−63.0	−87.5	43.3	NBS
NO_3^-	aq	−26.6	−49.6	35.0	NBS
NH_4^+	aq	−19.0	−31.7	27.1	NBS
		Oxygen			
O_2	g	0	0	49.00	NBS
H_2O	l	−56.69	−68.32	16.71	NBS
H_2O	g	−54.63	−57.80	45.10	NBS
OH^-	aq	−37.59	−54.97	−2.57	NBS
		Potassium			
K	s	0	0	15.48	RW
KCl	Sylvite	−97.7	−104.4	19.7	RW
K_2SiO_3	s	−343.3	−365.9	33.0	KEA

Formula	Form	$\Delta G°$	$\Delta H°$	$S°$	Source
		Tin			
Sn	s	0	0	12.32	NBS
SnO	s	−61.4	−68.3	13.5	NBS
SnO_2	Cassiterite	−124.2	−138.8	12.5	NBS
$Sn(OH)_2$	Precipitated	−117.5	−134.1	37	NBS
$SnCl_4$	g	−103.3	−112.7	87.4	NBS
SnS	s	−23.5	−24	18.4	NBS
SnS_2	s	−38.0	−40.0	20.9	KEA
Sn^{2+}	aq	−6.5	−2.1	−4	NBS
Sn^{4+}	aq	+0.6	+7.3	−28	NBS
SnF_6^{2-}	aq	−420	−474.7	0	Latimer
$Sn(OH)_6^{2-}$	aq	−310.5			Latimer
		Titanium			
Ti	s	0	0	7.32	RW
TiO	s	−116.9	−123.9	8.3	KE
TiO_2	Rutile	−212.6	−225.8	12.0	RW
TiS_2	s	−78.9	−80.0	18.7	KEA
TiO^{2+}	aq	−138			Latimer
		Uranium			
U	s	0	0	12.00	RW
UO_2	Uraninite	−246.6	−259.2	18.6	RW
UO_3	s	−275.5	−294.0	23.6	KEA
UF_6	g	−484.8	−505.0	89.8	Latimer, KK
U^{4+}	aq	−138.4	−146.7	−78	Latimer
UO_2^{2+}	aq	−236.4	−250.4	−17	Latimer
		Zinc			
Zn	s	0	0	9.95	NBS
Zn	g	+22.75	+31.25	38.45	NBS
ZnO	Zincite	−76.1	−83.2	10.4	NBS
$Zn(OH)_2$	s	−132.3	−153.4	19.4	NBS
ZnS	Sphalerite	−48.1	−49.2	13.8	NBS
$ZnCO_3$	Smithsonite	−174.9	−194.3	19.7	NBS
Zn_2SiO_4	Willemite	−364.1	−391.2	31.4	NBS
Zn^{2+}	aq	−35.1	−36.8	−26.8	NBS
$Zn(OH)_4^{2-}$	aq	−205.2			NBS

Sources of data: Letters and names preceding the references are the abbreviations used in the last column of the table.

C — Coughlin, J. P., Contributions to the data on theoretical metallurgy. XII. Heats and free energies of formation of inorganic oxides, *U.S. Bur. Mines Bull.* 542, 1954.

K62 — Kelley, K. K., Heats and free energies of formation of anhydrous silicates, *U.S. Bur. Mines Rept. Inv.*, 5901, 1962.

KK — Kelley, K. K., and E. G. King, Contributions to the data on theoretical metallurgy. XIV. Entropies of the elements and inorganic compounds, *U.S. Bureau of Mines Bull.* 592, 1961.

KEA — Kubaschewski, O., E. L. Evans, and C. B. Alcock, "Metallurgical Thermochemistry," 4th ed., Pergamon Press, New York, 1967.