

Standard Thermodynamic Values at 25°C

Please note that enthalpy and free energy values are given in kJ/mol while entropy values are given in J/(mol·K).

Formula	State	ΔH_f°	S°	ΔG_f°
(BOCl) ₃	(g)	-1633.43	380.74	-1550.17
(CN) ₂	(g) - cyanogen	308.95	242.25	297.19
(NH ₂) ₂ CO	(s) - urea	-333.51	104.60	-196.82
(NH ₄) ₂ O	(ℓ)	-430.70	267.52	-267.11
(NH ₄) ₂ SiF ₆	(s hexagonal)	-2681.69	280.24	-2365.55
(NH ₄) ₂ SO ₄	(s)	-1180.85	220.08	-901.90
[Co(NH ₃) ₅ Cl]Cl ₂	(s)	-1017.13	366.10	-582.83
[Co(NH ₃) ₅ NO ₂](NO ₃) ₂	(s)	-1088.68	347.27	-418.40
[Co(NH ₃) ₅ NO ₂] ⁺²	(aq)	-613.37	179.91	-172.80
[Co(NH ₃) ₆](ClO ₄) ₃	(s)	-1034.70	615.05	-221.75
[Co(NH ₃) ₆](NO ₃) ₃	(s)	-1281.98	447.69	-516.72
[Co(NH ₃) ₆]Br ₃	(s)	-1002.90	325.10	-501.24
Ac	(g)	393.30	0.00	0.00
Ac	(s)	0.00	62.76	0.00
Ac ₂ O ₃	(s)	-1857.70	0.00	-1778.20
AcBr ₃	(s)	-920.48	0.00	0.00
AcCl ₃	(s)	-1133.86	0.00	0.00
AcF ₃	(s)	-1995.77	0.00	0.00
AcOF	(s)	-1108.76	0.00	0.00
Ag	(s)	0.00	42.55	0.00
Ag	(g)	284.55	172.89	245.68
Ag ⁺¹	(aq)	105.58	72.68	77.12
Ag ₂	(g)	409.99	257.02	358.78
Ag ₂ C ₂ O ₄	(s)	-673.21	209.20	-584.09
Ag ₂ CO ₃	(s)	-505.85	167.36	-436.81
Ag ₂ CrO ₄	(s)	-731.74	217.57	-641.83
Ag ₂ MoO ₄	(s)	-840.57	213.38	-748.10
Ag ₂ O	(s)	-31.05	121.34	-11.21
Ag ₂ O ₂	(s)	-24.27	117.15	27.61

Formula	State	ΔH_f°	S°	ΔG_f°
Ag ₂ O ₃	(s)	33.89	100.42	121.34
Ag ₂ S	(s alpha orthorhombic)	-32.59	144.01	-40.67
Ag ₂ S	(s beta)	-29.41	150.62	-39.46
Ag ₂ Se	(s)	-37.66	150.71	-44.35
Ag ₂ SeO ₃	(s)	-365.26	230.12	-304.18
Ag ₂ SeO ₄	(s)	-420.49	248.53	-334.30
Ag ₂ SO ₃	(s)	-490.78	158.16	-411.29
Ag ₂ SO ₄	(s)	-715.88	200.41	-618.48
Ag ₂ Te	(s)	-37.24	154.81	43.10
AgBr	(s)	-100.37	107.11	-96.90
AgBrO ₃	(s)	-27.20	152.72	54.39
AgCl	(s)	-127.07	96.23	-109.80
AgClO ₂	(s)	8.79	134.56	75.73
AgClO ₃	(s)	-30.3	142.0	64.5
AgClO ₄	(s)	-31.1		
AgCN	(s)	146.02	107.19	156.90
AgF•2H ₂ O	(s)	-800.82	174.89	-671.11
AgI	(s)	-61.84	115.48	-66.19
AgIO ₃	(s)	-171.13	149.37	-93.72
AgN ₃	(s)	308.78	104.18	376.14
AgNO ₂	(s)	-45.06	128.20	19.08
AgNO ₃	(s)	-124.39	140.92	-33.47
AgO	(s)	-11.42	57.78	14.23
AgOCN	(s)	-95.40	121.34	-58.16
AgReO ₄	(s)	-736.38	153.13	-635.55
AgSCN	(s)	87.86	130.96	101.38
Al	(s)	0.00	28.33	0.00
Al	(ℓ)	8.66	35.23	6.61
Al	(g)	326.35	164.43	285.77

Formula	State	ΔH_f°	S°	ΔG_f°
Al(BH ₄) ₃	(ℓ)	-16.32	289.11	144.77
Al(BH ₄) ₃	(g)	12.55	379.07	146.44
Al(CH ₃) ₃	(g)	-74.06	0.00	0.00
Al(CH ₃) ₃	(ℓ)	-136.40	209.41	-10.04
Al(NO ₃) ₃ •6H ₂ O	(s)	-2850.48	467.77	-2203.88
Al(NO ₃) ₃ •9H ₂ O	(s)	-3757.06	569.02	-2929.64
Al(OAc) ₃	(s)	-1892.42	0.00	0.00
Al(OH) ₃	(s)	-1284.49	71.13	-1305.83
Al ⁺³	(aq)	-531.37	-321.75	-485.34
Al ₂ (CH ₃) ₆	(g)	-230.91	524.67	-9.79
Al ₂ (SO ₄) ₃	(s)	-3435.06	239.32	-3506.61
Al ₂ Br ₆	(g)	-1020.90	547.27	-947.26
Al ₂ Cl ₆	(g)	-1295.37	475.51	-1220.89
Al ₂ F ₆	(g)	-2631.74	387.02	-2539.69
Al ₂ I ₆	(g)	-506.26	584.09	-560.66
Al ₂ O	(g)	-131.38	259.41	-161.08
Al ₂ O ₃	(s alpha-corundum)	-1675.27	50.92	-1581.97
Al ₂ O ₃	(s gamma-corundum)	-1656.86	59.83	-1562.72
Al ₂ O ₃	(ℓ)	-1581.13	89.58	-1499.25
Al ₂ O ₃ •3H ₂ O	(s) - gibbsite	-2562.70	140.21	-2287.39
Al ₂ O ₃ •3H ₂ O	(s) - bayerite	-2552.66	0.00	0.00
Al ₂ O ₃ •H ₂ O	(s) - boehmite	-1974.85	96.86	-1825.48
Al ₂ O ₃ •H ₂ O	(s) - diaspore	-1999.95	70.54	-1840.96
Al ₂ Si ₂ O ₇ •2H ₂ O	(s) - halloysite	-4079.82	203.34	-3759.32
Al ₂ Si ₂ O ₇ •2H ₂ O	(s) - kaolinite	-4098.65	202.92	-3778.15
Al ₂ SiO ₅	(s) - andalusite	-2591.99	93.30	-2444.71
Al ₂ SiO ₅	(s) - kyanite	-2596.17	83.81	-2443.87
Al ₂ SiO ₅	(s) - sillimanite	-2593.24	96.19	-2442.62
Al ₄ C ₃	(s)	-207.28	104.60	-238.45
Al ₄ C ₃	(g)	-215.89	89.12	-203.34
Al ₆ BeO ₁₀	(s)	-5624.13	175.56	-5317.45
Al ₆ BeO ₁₀	(ℓ)	-5299.45	314.89	-5034.19
Al ₆ Si ₂ O ₁₃	(s) - mullite	-6819.92	274.89	-6443.36
AlAs	(s)	-116.32	0.00	0.00

Formula	State	ΔH_f°	S°	ΔG_f°
AlAs	(s)	-116.32	0.00	0.00
AlBO ₂	(g)	-541.41	269.45	-550.61
AlBr ₃	(s)	-511.12	180.25	-488.31
AlBr ₃	(ℓ)	-501.20	206.48	-486.26
AlBr ₃	(g)	-410.87	349.07	-438.48
AlC	(g)	689.52	223.34	633.04
AlCl	(g)	-51.46	227.86	-77.82
AlCl ₂	(g)	-288.70	288.28	-299.57
AlCl ₃	(s)	-705.63	109.29	-630.07
AlCl ₃	(ℓ)	-674.80	172.92	-618.19
AlCl ₃	(g)	-584.50	314.30	-570.07
AlCl ₃ •6H ₂ O	(s)	-2691.57	376.56	-2269.40
AlF	(g)	-265.27	215.06	-290.79
AlF ₂	(g)	-732.20	263.17	-740.57
AlF ₃	(s)	-1510.42	66.48	-1430.93
AlF ₃	(g)	-1209.18	276.77	-1192.86
AlF ₃ •3H ₂ O	(s)	-2297.43	209.20	-2051.83
AlH	(g)	259.24	187.78	231.17
AlH ₃	(s)	-46.02	0.00	0.00
AlI ₃	(s)	-309.62	189.54	-305.43
AlI ₃	(ℓ)	-297.06	219.66	-301.25
AlI ₃	(g)	-205.02	363.17	-251.04
AlN	(s)	-317.98	20.17	-287.02
AlN	(g)	435.14	211.71	410.03
AlO	(g)	83.68	218.28	57.74
AlOCl	(s)	-793.29	54.39	-737.26
AlOCl	(g)	-348.11	248.82	-350.20
AlOF	(g)	-586.60	234.26	-587.02
AlOH	(g)	-179.91	216.31	-184.10
AlPO ₄	(s) - berlinite	-1692.01	90.79	-1601.22
AlS	(g)	200.83	230.50	150.21
Am	(c)	0.00	62.76	0.00
Am ⁺³	(aq)	-682.83	-158.99	-671.53
Am ⁺⁴	(aq)	-511.70	-372.38	-461.08

Formula	State	ΔH_f°	S°	ΔG_f°
Am ₂ O ₃	(s)	-1757.28	154.72	-1677.78
AmO ₂	(s)	-1005.00	83.68	-950.19
Ar	(g)	0.00	154.73	0.00
As	(s alpha-gray)	0.00	35.15	0.00
As ₂	(g)	222.17	239.32	171.96
As ₂ O ₅	(s)	-924.87	105.44	-782.41
As ₂ S ₃	(s)	-169.03	163.59	-168.62
As ₄	(g)	143.93	313.80	92.47
As ₄ O ₆	(s octahedral)	-1313.94	214.22	-1152.52
As ₄ O ₆	(s monoclinic)	-1309.59	234.30	-1154.03
As ₄ O ₆	(g)	-1209.18	380.74	-1097.88
AsBr ₃	(g)	-129.70	363.76	-158.99
AsCl ₃	(ℓ)	-305.01	216.31	-259.41
AsCl ₃	(g)	-261.50	327.06	-248.95
AsH ₃	(g)	66.44	222.67	68.91
AsI ₃	(s)	-58.16	213.05	-59.41
AsN	(g)	196.27	225.52	167.99
AsO ₂ ⁻¹	(aq)	-429.03	41.42	-350.03
AsO ₄ ⁻³	(aq)	-888.1	-162.8	-648.4
At	(s)	0.00	121.34	0.00
Au	(s)	0.00	47.40	0.00
Au	(g)	366.10	180.39	326.35
Au(CN) ₂ ⁻¹	(aq)	242.25	171.54	285.77
AuBr ₄ ⁻¹	(aq)	-191.63	335.98	-167.36
AuCl ₄ ⁻¹	(aq)	-322.17	266.94	-237.32
AuH	(g)	294.97	211.05	265.68
B	(s)	0.00	5.86	0.00
B	(g)	562.75	153.34	518.82
B(CH ₃) ₃	(ℓ)	-143.09	238.91	-32.22
B(CH ₃) ₃	(g)	-124.26	314.64	-35.98
B(OH) ₄ ⁻¹	(aq)	-1344.03	102.51	-1153.32
B ₂	(g)	830.52	201.79	774.04
B ₂ Cl ₄	(ℓ)	-523.00	262.34	-464.84
B ₂ H ₆	(g)	35.56	232.00	86.61

Formula	State	ΔH_f°	S°	ΔG_f°
B ₂ O ₂	(g)	-454.80	242.38	-462.33
B ₂ O ₃	(s)	-1272.77	53.97	-1193.70
B ₂ O ₃	(s amorphous)	-1254.53	77.82	-1182.40
B ₂ O ₃	(g)	-843.79	279.70	-831.99
B ₃ N ₃ H ₆	(ℓ)	-540.99	199.58	-392.79
B ₄ C	(s)	-71.13	27.11	-71.13
B ₅ H ₉	(ℓ)	42.68	184.22	171.67
Ba	(s)	0.00	62.34	0.00
Ba	(ℓ)	4.98	66.73	3.85
Ba	(g)	179.08	170.00	146.86
Ba ⁺²	(aq)	-537.6	9.6	-560.8
Ba(BrO ₃) ₂	(s)	-752.66	242.67	-577.39
Ba(BrO ₃) ₂ •H ₂ O	(s)	-1054.79	292.46	-824.62
Ba(ClO ₃) ₂	(s)	-680.32	196.65	-531.37
Ba(ClO ₄) ₂ •3H ₂ O	(s)	-1691.59	393.30	-1270.68
Ba(IO ₃) ₂	(s)	-1027.17	249.37	-864.83
Ba(IO ₃) ₂ •H ₂ O	(s)	-1322.14	297.06	-1104.16
Ba(N ₃) ₂ •H ₂ O	(s)	-308.36	188.28	-105.02
Ba(NO ₃) ₂	(s)	-992.07	213.80	-796.72
Ba(OH) ₂ •8H ₂ O	(s)	-3342.18	426.77	-2793.24
Ba(ReO ₄) ₂ •4H ₂ O	(s)	-3368.12	376.56	-2918.34
Ba ⁺²	(aq)	-537.64	9.62	-560.74
Ba ₂ TiO ₄	(s)	-2243.04	196.65	-2133.00
BaBr ₂	(s)	-757.30	146.44	-736.80
BaBr ₂	(g)	-439.32	330.54	-472.79
BaBr ₂ •2H ₂ O	(s)	-1366.08	225.94	-1230.51
BaCl ₂	(s)	-858.14	123.68	-810.44
BaCl ₂	(ℓ)	-832.45	143.51	-790.15
BaCl ₂	(g)	-498.73	325.64	-510.70
BaCl ₂ •2H ₂ O	(s)	-1460.13	202.92	-1296.45
BaCO ₃	(s) - witherite	-1216.29	112.13	-1137.63
BaCrO ₄	(s)	-1445.99	158.57	-1345.28
BaF ₂	(s)	-1208.76	96.40	-1158.55
BaF ₂	(ℓ)	-1171.31	121.25	-1128.38

Formula	State	ΔH_f^0	S^0	ΔG_f^0
BaF ₂	(g)	-803.75	301.16	-814.50
BaI ₂	(s)	-605.42	165.14	-601.41
BaI ₂	(l)	-585.89	183.68	-587.39
BaI ₂	(g)	-302.92	348.11	-353.42
BaMoO ₄	(s)	-1548.08	138.07	-1439.71
BaO	(s)	-548.10	72.09	-520.41
BaO	(l)	-491.62	96.57	-471.24
BaO	(g)	-123.85	235.35	-144.81
BaS	(s)	-460.24	78.24	-456.06
BaSeO ₃	(s)	-1040.56	167.36	-968.18
BaSeO ₄	(s)	-1146.42	175.73	-1044.74
BaSiF ₆	(s)	-2952.23	163.18	-2794.08
BaSiO ₃	(s)	-1623.60	109.62	-1540.26
BaSO ₄	(s)	-1473.19	132.21	-1362.31
BaTiO ₃	(s)	-1659.79	107.95	-1572.35
BaZrO ₃	(s)	-1779.46	124.68	-1694.52
BBr	(g)	238.07	224.89	195.39
BBr ₃	(l)	-239.74	229.70	-238.49
BBr ₃	(g)	-205.64	324.13	-232.46
BCl	(g)	149.49	213.13	120.92
BCl ₂ F	(g)	-645.17	284.51	-631.37
BCl ₃	(l)	-427.19	206.27	-387.44
BCl ₃	(g)	-403.76	289.99	-388.74
BClF ₂	(g)	-890.36	271.96	-876.13
Be	(s)	0.00	9.54	0.00
Be	(l)	12.05	16.53	9.96
Be	(g)	324.26	136.19	286.60
Be(OH) ₂	(s beta)	-905.84	46.02	-816.72
Be ⁺²	(aq)	-382.84	-129.70	-379.70
Be ₂ C	(s)	-117.15	16.32	-87.86
Be ₂ SiO ₄	(s)	-2149.32	64.31	-2032.59
Be ₃ N ₂	(s cubic)	-588.27	34.14	-533.04
BeAl ₂ O ₄	(s)	-2300.78	66.27	-2178.61
BeBr ₂	(s)	-369.87	106.27	-353.13

Formula	State	ΔH_f^0	S^0	ΔG_f^0
BeC ₂	(g)	564.84	218.40	506.26
BeCl ₂	(s beta)	-496.22	75.81	-449.53
BeF ₂	(a alpha)	-1026.75	53.35	-979.47
BeH	(g)	326.77	170.87	298.32
BeI ₂	(s)	-192.46	120.50	-209.20
BeO	(s alpha)	-608.35	13.77	-579.07
BeO	(g)	129.70	197.53	104.18
BeO ₂ ⁻²	(aq)	-790.78	158.99	-640.15
BeSO ₄	(s alpha)	-1205.20	77.99	-1093.86
BeSO ₄ •4H ₂ O	(s)	-2423.75	232.97	-2080.66
BeWO ₄	(s)	-1514.61	88.37	-1405.82
BF	(g)	-122.17	200.37	-149.79
BF ₃	(g)	-1137.00	254.01	-1120.35
BF ₄ ⁻¹	(aq)	-1574.86	179.91	-1486.99
BH	(g)	449.61	171.75	419.61
BH ₄ ⁻¹	(aq)	48.16	110.46	114.27
Bi	(s)	0.00	56.74	0.00
Bi	(g)	207.11	186.90	168.20
Bi ₂ O ₃	(s)	-573.88	151.46	-493.71
Bi ⁺³	(aq)			82.8
Bi ₂ S ₃	(s)	-143.09	200.41	-140.58
Bi ₂ Te ₃	(s)	-77.40	260.91	-76.99
Bi ₃	(g)	71.13	349.07	20.75
BiBr ₃	(s)	263.59	225.94	234.30
BiCl ₃	(s)	-379.07	176.98	-315.06
BiCl ₃	(g)	-265.68	358.74	-256.06
BiOCl	(s)	-366.94	120.50	-322.17
BiS	(g)	179.91	284.51	121.34
BN	(s)	-254.39	14.81	-228.45
BN	(g)	647.47	212.17	614.50
BO	(g)	25.10	203.43	-4.18
BO ₂	(g)	-300.41	229.45	-305.85
BO ₂ ⁻¹	(aq)	-772.37	-37.24	-678.94
Br	(g)	111.88	174.91	82.43

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Br ⁻¹	(aq)	-121.55	82.42	-103.97
Br ₂	(ℓ)	0.00	152.23	0.00
Br ₂	(g)	30.91	245.35	3.14
Br ₂ Cl ⁻¹	(aq)	-170.29	188.70	-128.45
Br ₃ ⁻¹	(aq)	-130.42	215.48	-107.07
BrCl	(g)	14.64	239.99	-0.96
BrF	(g)	-93.85	228.86	-109.16
BrF ₃	(ℓ)	-300.83	178.24	-240.58
BrF ₃	(g)	-255.60	292.42	-229.45
BrF ₅	(ℓ)	-458.57	225.10	-351.87
BrO	(g)	125.77	237.44	108.24
BrO ⁻¹	(aq)	-94.14	41.84	-33.47
BrO ₃ ⁻¹	(aq)	-83.68	163.18	1.67
C	(s) - graphite	0.00	5.69	0.00
C	(s) - diamond	1.90	2.38	2.90
C	(g)	716.68	157.99	671.29
C ⁻¹	(g)	587.85	151.29	550.61
C ₁₀ H ₁₄ N ₂	(ℓ) - nicotine	39.33	0.00	0.00
C ₁₀ H ₁₄ O	(s) - thymol	-309.62	0.00	0.00
C ₁₀ H ₁₆	(ℓ) - myrcene	14.64	0.00	0.00
C ₁₀ H ₁₈	(g) - 1-decyne	41.21	524.51	252.21
C ₁₀ H ₁₈ O ₄	(s) - decanedioic acid	-1082.82	0.00	0.00
C ₁₀ H ₂₀	(ℓ) - 1-decene	-174.60	425.01	105.02
C ₁₀ H ₂₀ O	(g) - decanal	-330.91	578.56	-66.53
C ₁₀ H ₂₀ O ₂	(s) - decanoic acid	-713.75	0.00	0.00
C ₁₀ H ₂₀ O ₂	(s) - decanoic acid	-713.75	0.00	0.00
C ₁₀ H ₂₂	(ℓ) - decane	-301.04	425.51	-17.53
C ₁₀ H ₂₂ O	(ℓ) - 1-decanol	-479.49	430.53	-132.21
C ₁₀ H ₂₂ O	(g) - 1-decanol	-401.66	597.48	-104.18
C ₁₀ H ₈	(s) - naphthalene	75.31	166.90	201.04
C ₁₀ H ₈	(g) - naphthalene	148.95	335.64	223.59
C ₁₁ H ₂₄	(ℓ) - undecane	-326.56	458.11	22.76
C ₁₁ H ₂₄	(g) - undecane	-270.29	583.58	41.59
C ₁₂ H ₁₀	(s) - acenaphthene	70.29	0.00	0.00

Formula	State	ΔH_f^0	S^0	ΔG_f^0
C ₁₂ H ₁₀	(s) - biphenyl	100.50	205.85	254.18
C ₁₂ H ₁₀	(ℓ) - biphenyl	119.24	250.20	259.70
C ₁₂ H ₂₂ O ₁₁	(s) - sucrose	-2225.47	360.24	-1544.65
C ₁₂ H ₂₆	(ℓ) - 1-dodecane	-352.13	490.62	28.07
C ₁₈ H ₃₆ O ₂	(s) - octadecanoic acid	-947.68	0.00	0.00
C ₁₉ H ₂₁ NO ₃	(s) - thebaine	-263.59	0.00	0.00
C ₁₉ H ₃₆ O ₂	(ℓ) - methyl oleate	-728.85	0.00	0.00
C ₂	(g)	837.64	199.28	781.57
C ₂₀ H ₂₄ N ₂ O ₂	(s) - quinine	-155.23	0.00	0.00
C ₂ ⁻¹	(g)	443.50	196.48	393.30
C ₂₁ H ₂₂ N ₂ O ₂	(s) - strychnine	-171.54	0.00	0.00
C ₂ H ₂	(g) - acetylene	226.73	200.83	209.20
C ₂ H ₃ Cl	(g) - vinyl chloride	35.56	263.88	51.88
C ₂ H ₃ Cl ₃	(g) - 1,1,1-trichloroethane	-142.30	320.03	-76.19
C ₂ H ₄	(g) - ethylene	52.30	219.20	68.24
C ₂ H ₅ Br	(ℓ) - ethyl bromide	-92.01	198.74	-27.78
C ₂ H ₅ Br	(g) - ethyl bromide	-64.02	287.48	-26.32
C ₂ H ₅ NO	(s) - acetamide	-317.98	0.00	0.00
C ₂ H ₅ OC ₂ H ₅	(ℓ) - diethyl ether	-273.22	253.13	-116.65
C ₂ H ₅ OC ₂ H ₅	(g) - diethyl ether	-252.13	342.67	-122.34
C ₂ H ₅ OH	(ℓ) - ethanol	-276.98	161.04	-174.18
C ₂ H ₅ OH	(g) - ethanol	-234.43	282.59	-167.90
C ₂ H ₆	(g) - ethane	-84.68	229.12	-32.80
C ₂ H ₆ O ₂	(ℓ) - ethylene glycol	-454.80	166.94	-323.21
C ₂ H ₆ O ₂	(g) - ethylene glycol	-389.32	323.55	-304.47
C ₂ O ₄ ⁻²	(aq)	-825.1	45.6	-673.9
C ₃	(g)	820.06	237.23	754.38
C ₃ H ₄ N ₂	(s) - imidazole	60.67	0.00	0.00
C ₃ H ₆	(g) - cyclopropane	53.30	237.44	104.39
C ₃ H ₇ NO ₂	(s) - ethyl carbamate	-520.49	0.00	0.00
C ₃ H ₇ OH	(ℓ) - 1-propanol	-304.01	194.56	-170.62
C ₃ H ₇ OH	(g) - 1-propanol	-256.40	324.72	-161.80
C ₃ H ₈	(g) - propane	-103.85	270.20	-23.56
C ₃ O ₂	(ℓ)	-117.28	181.08	-105.02

Formula	State	ΔH_f^0	S^0	ΔG_f^0
C ₃ O ₂	(g)	-93.72	276.35	-109.83
C ₄ H ₁₀	(ℓ) - n-butane	-147.65	230.96	-15.06
C ₄ H ₁₀	(g) - n-butane	-126.15	310.12	-17.15
C ₄ H ₄ O	(g) – furan	-34.43	267.19	0.88
C ₄ H ₆	(g) - 1,3-butadiene	110.16	278.74	150.67
C ₄ H ₈	(g) - cis-2-butene	-6.99	300.83	65.86
C ₄ H ₈	(g) - trans-2-butene	-11.17	296.48	62.97
C ₄ H ₈	(g) - cyclobutane	26.65	265.39	110.04
C ₄ H ₈ O	(ℓ) - 2-butanone	-273.17	238.82	-151.38
C ₄ H ₈ O	(g) - 2-butanone	-235.39	338.11	-146.06
C ₄ H ₈ O	(ℓ) - tetrahydrofuran	-216.19	0.00	0.00
C ₄ H ₈ O ₂	(ℓ) - 1,4-dioxane	-353.42	195.27	-188.11
C ₄ H ₈ O ₂	(g) - 1,4-dioxane	-315.06	299.78	-180.79
C ₄ H ₉ OH	(ℓ) - 1-butanol	-327.11	226.35	-162.51
C ₄ H ₉ OH	(g) - 1-butanol	-274.68	362.75	-150.79
C ₄ N ₂	(g)	533.46	289.99	510.87
C ₅ H ₁₀	(ℓ) - cyclopentane	-105.77	204.26	36.40
C ₅ H ₁₀	(g) - cyclopentane	-77.24	292.88	38.62
C ₅ H ₁₂	(g) - pentane	-146.44	348.95	-8.37
C ₅ H ₄ O ₂	(ℓ) - furfural	-200.00	0.00	0.00
C ₅ H ₆ N ₂ O ₂	(s) - thymine	-468.19	0.00	0.00
C ₅ H ₈ O ₂	(s) - tiglic acid	-490.78	0.00	0.00
C ₆ H ₁₀	(ℓ) - cyclohexene	-38.83	216.19	101.59
C ₆ H ₁₀	(g) - cyclohexene	-5.36	310.75	106.86
C ₆ H ₁₀ O ₄	(s) - adipic acid	-994.12	0.00	0.00
C ₆ H ₁₀ O ₄	(ℓ) - adipic acid	-985.37	0.00	-741.28
C ₆ H ₁₂	(ℓ) - cyclohexane	-156.23	204.35	26.65
C ₆ H ₁₂	(g) - cyclohexane	-123.14	298.24	31.76
C ₆ H ₁₂ O	(ℓ) - cyclohexanol	-348.19	199.58	-133.34
C ₆ H ₁₂ O ₂	(ℓ) - hexanoic acid	-584.55	0.00	0.00
C ₆ H ₁₄	(ℓ) - hexane	-198.82	296.06	-3.81
C ₆ H ₁₄	(g) - hexane	-167.19	388.40	-0.25
C ₆ H ₁₄	(g) - 2-methylpentane	-174.31	380.53	-5.02
C ₆ H ₁₄	(g) - 3-methylpentane	-171.63	379.78	-2.13

Formula	State	ΔH_f^0	S^0	ΔG_f^0
C ₆ H ₁₄ O	(ℓ) - 1-hexanol	-379.49	289.53	-152.30
C ₆ H ₁₄ O	(g) - 1-hexanol	-317.57	441.41	-135.56
C ₆ H ₅ COOH	(s) - benzoic acid	-385.05	167.57	-245.27
C ₆ H ₅ NH ₂	(ℓ) – aniline	31.59	191.29	149.08
C ₆ H ₅ NH ₂	(g) – aniline	86.86	319.16	166.69
C ₆ H ₅ OH	(s) – phenol	-165.02	144.01	-50.42
C ₆ H ₅ OH	(g) – phenol	-96.36	315.60	-32.89
C ₆ H ₆	(ℓ) – benzene	48.99	173.26	124.35
C ₆ H ₆	(g) – benzene	82.93	269.20	129.66
C ₇ H ₁₄	(ℓ) - cycloheptane	-156.77	242.55	54.06
C ₇ H ₁₄ O ₂	(ℓ) - heptanoic acid	-609.82	0.00	0.00
C ₇ H ₁₆	(g) - 3-ethylpentane	-189.66	411.50	11.00
C ₇ H ₁₆	(ℓ) – heptanes	-224.39	326.02	1.76
C ₇ H ₁₆	(g) – heptanes	-187.78	427.90	7.99
C ₇ H ₁₆	(ℓ) - 2-methylhexane	-229.83	323.34	-2.89
C ₇ H ₁₆	(g) - 2-methylhexane	-194.93	419.99	3.22
C ₇ H ₇ NO	(s) - benzamide	-202.59	0.00	0.00
C ₇ H ₈	(ℓ) – toluene	12.01	220.96	113.76
C ₇ H ₈	(g) – toluene	50.00	320.66	122.01
C ₇ H ₈ O	(g) - o-cresol	-128.62	357.61	-37.07
C ₇ H ₈ O	(g) - m-cresol	-132.34	356.77	-40.54
C ₇ H ₈ O	(g) - p-cresol	-125.39	347.65	-30.88
C ₈ H ₁₀	(ℓ) - ethylbenzene	-12.47	255.18	119.70
C ₈ H ₁₀	(g) - ethylbenzene	29.79	360.45	130.58
C ₈ H ₁₄ O ₄	(s) - octanedioic acid	-1038.05	0.00	0.00
C ₈ H ₁₆	(ℓ) - cyclooctane	-169.79	262.00	77.82
C ₈ H ₁₈	(ℓ) - 2-methylheptane	-255.14	352.13	3.85
C ₈ H ₁₈	(g) - 2-methylheptane	-215.48	455.26	12.76
C ₈ H ₁₈	(ℓ) - octane	-249.95	357.73	7.41
C ₈ H ₁₈	(g) - octane	-208.45	466.73	16.40
C ₈ H ₂₀ Pb	(ℓ) - tetraethyl lead	53.14	472.46	336.39
C ₈ H ₂₀ Pb	(g) - tetraethyl lead	110.04	0.00	0.00
C ₈ H ₇ N	(s) - indole	124.68	0.00	0.00
C ₈ H ₈	(ℓ) - styrene	103.89	237.57	202.38

Formula	State	ΔH_f^0	S^0	ΔG_f^0
C ₈ H ₈	(g) - styrene	147.36	345.10	213.80
C ₈ H ₈ O ₂	(s) - sorbic acid	-390.79	0.00	0.00
C ₉ H ₂₀	(l) - nonane	-275.47	393.67	11.76
C ₉ H ₂₀	(g) - nonane	-229.03	505.68	24.81
C ₉ H ₇ N	(s) - isoquinoline	158.57	0.00	0.00
Ca	(s)	0.00	41.42	0.00
Ca	(l)	10.92	50.67	8.20
Ca	(g)	179.28	154.77	145.52
Ca(ClO ₄) ₂ •4H ₂ O	(s)	-1948.91	433.46	-1476.83
Ca(H ₂ PO ₄) ₂ •H ₂ O	(s)	-3409.67	259.83	-3058.42
Ca(IO ₃) ₂	(s)	-1002.49	230.12	-839.31
Ca(IO ₃) ₂ •6H ₂ O	(s)	-2780.69	451.87	-2267.73
Ca(NO ₃) ₂	(s)	-938.39	193.30	-743.20
Ca(NO ₃) ₂ •2H ₂ O	(s)	-1540.76	269.45	-1229.34
Ca(NO ₃) ₂ •3H ₂ O	(s)	-1838.03	319.24	-1471.93
Ca(NO ₃) ₂ •4H ₂ O	(s)	-2132.33	375.30	-1713.47
Ca(OH) ₂	(s)	-986.17	83.39	-898.51
Ca[Mg(CO ₃) ₂]	(s) - dolomite	-2326.30	155.18	-2163.55
Ca ⁺¹	(g)	775.30	160.54	733.46
Ca ⁺²	(aq)	-542.83	-53.14	-553.54
Ca ₁₀ (PO ₄) ₆ (OH) ₂	(s) - hydroxyapatite	-13476.66	780.73	-12677.52
Ca ₁₀ (PO ₄) ₆ F ₂	(s) - fluorapatite	-13744.44	775.71	-12982.95
Ca ₂ P ₂ O ₇	(s beta)	-3338.83	189.24	-3132.14
Ca ₂ SiO ₄	(s beta)	-2307.48	127.74	-2192.83
Ca ₂ SiO ₄	(s gamma)	-2317.94	120.79	-2201.20
Ca ₃ (AsO ₄) ₂	(s)	-3298.67	225.94	-3063.11
Ca ₃ (PO ₄) ₂	(s beta)	-4120.82	235.98	-3884.84
Ca ₃ (PO ₄) ₂	(s alpha)	-4109.94	240.91	-3875.64
CaBr ₂	(s)	-683.25	129.70	-664.13
CaBr ₂	(l)	-663.00	147.86	-649.31
CaBr ₂	(g)	-384.93	314.64	-420.95
CaBr ₂ •6H ₂ O	(s)	-2506.22	410.03	-2153.09
CaC ₂	(s)	-59.83	69.96	-64.85
CaC ₂ O ₄ •H ₂ O	(s)	-1674.86	156.48	-1513.98

Formula	State	ΔH_f^0	S^0	ΔG_f^0
CaCl ₂	(s)	-795.80	104.60	-748.10
CaCl ₂	(l)	-774.04	123.85	-732.20
CaCl ₂	(g)	-471.54	289.95	-479.07
CaCO ₃	(s) - aragonite	-1207.13	88.70	-1127.80
CaCO ₃	(s) - calcite	-1206.92	92.88	-1128.84
CaCrO ₄	(s)	-1379.05	133.89	-1277.38
CaF ₂	(s)	-1219.64	68.87	-1167.34
CaF ₂	(l)	-1184.07	92.59	-1142.23
CaF ₂	(g)	-782.41	273.63	-794.96
CaH ₂	(s)	-186.19	41.84	-147.28
CaHPO ₄	(s)	-1814.39	111.38	-1681.26
CaHPO ₄ •2H ₂ O	(s)	-2403.58	189.45	-2154.76
CaI ₂	(s)	-536.81	145.27	-533.13
CaI ₂	(l)	-500.16	178.95	-506.52
CaI ₂	(g)	-258.15	327.44	-308.78
CaMoO ₄	(s)	-1541.39	122.59	-1434.69
CaO	(s)	-635.13	38.20	-603.54
CaO	(l)	-557.35	62.30	-532.96
CaS	(s)	-474.88	56.48	-469.86
CaSe	(s)	-368.19	66.94	-363.17
CaSeO ₄ •2H ₂ O	(s)	-1706.65	221.75	-1486.99
CaSiO ₃	(s wollastonite)	-1634.94	81.92	-1549.71
CaSiO ₃	(s pseudowollastonite)	-1628.41	87.36	-1544.73
CaSO ₃ •H ₂ O	(s)	-1752.68	184.10	-1555.19
CaSO ₄	(s anhydrite insoluble)	-1434.11	106.69	-1321.85
CaSO ₄	(s alpha soluble)	-1425.24	108.37	-1313.48
CaSO ₄	(s beta soluble)	-1420.80	108.37	-1309.05
CaSO ₄ •0.5H ₂ O	(s alpha macro)	-1576.74	130.54	-1436.83
CaSO ₄ •0.5H ₂ O	(s beta micro)	-1574.65	134.31	-1435.87
CaSO ₄ •2H ₂ O	(s)	-2022.63	194.14	-1797.45
CaTiO ₃	(s perovskite)	-1660.63	93.64	-1575.28
CaTiSiO ₅	(s sphene)	-2603.28	129.20	-2461.87
CaWO ₄	(s)	-1645.15	126.40	-1538.50
CaZrO ₃	(s)	-1766.90	100.08	-1681.13

Formula	State	ΔH_f^0	S^0	ΔG_f^0
CBr	(g)	510.45	233.47	464.42
CCl	(g)	502.08	224.30	468.61
Cd	(s gamma)	0.00	51.76	0.00
Cd	(s alpha)	-0.59	51.76	-0.59
Cd	(g)	112.01	167.64	77.45
Cd ⁺²	(aq)	-75.9	-73.2	-77.6
Cd(CN) ₄ ⁻²	(aq)	428.02	322.17	507.52
Cd(NH ₃) ₄ ⁺²	(aq)	-450.20	336.39	-226.35
CdBr ₂	(s)	-316.18	137.24	-296.31
CdBr ₂ •4H ₂ O	(s)	-1492.56	316.31	-1248.03
CdCl ₂	(s)	-391.50	115.27	-343.97
CdCl ₂ •2.5H ₂ O	(s)	-1131.94	227.19	-944.09
CdCl ₃ ⁻¹	(aq)	-561.07	202.92	-487.02
CdCO ₃	(s)	-750.61	92.47	-669.44
CdF ₂	(s)	-700.40	77.40	-647.68
CdI ₂	(s)	-202.92	161.08	-201.38
CdI ₄ ⁻²	(aq)	-341.83	326.35	-315.89
CdO	(s)	-258.15	54.81	-228.45
CdS	(s)	-161.92	64.85	-156.48
CdSb	(s)	-14.39	92.88	-13.01
CdSeO ₃	(s)	-575.30	142.26	-497.90
CdSeO ₄	(s)	-633.04	164.43	-531.79
CdSiO ₃	(s)	-1189.09	97.49	-1105.41
CdSO ₄	(s)	-933.28	123.04	-822.78
CdSO ₄ • ⁸ / ₃ H ₂ O	(s)	-1729.37	229.63	-1465.34
CdSO ₄ •H ₂ O	(s)	-1239.55	154.03	-1068.84
CdTe	(s)	-92.47	100.42	-92.05
Ce	(s)	0.00	71.96	0.00
Ce	(g)	422.58	191.67	384.93
Ce ⁺³	(aq)	-696.22	-205.02	-671.95
Ce ⁺⁴	(aq)	-537.23	-301.25	-503.75
Ce ₂ (C ₂ O ₄) ₃ •10H ₂ O	(s)	-6782.26	799.14	-5903.62
Ce ₂ O ₃	(s)	-1796.19	150.62	-1706.24
CeC ₂	(s)	-62.76	83.68	-63.60

Formula	State	ΔH_f^0	S^0	ΔG_f^0
CeC ₂	(g)	569.86	267.78	514.21
CeC ₄	(g)	702.91	305.43	635.97
CeCl ₃	(s)	-1053.53	150.62	-977.80
CeCrO ₃	(s)	-1539.71	104.60	-1451.85
CeO ₂	(s)	-1088.68	62.30	-1024.66
CeS	(s)	-459.40	78.24	-451.45
CeS	(g)	131.38	260.24	84.52
CeS ₂	(g)	10.04	292.88	-36.82
CF	(g)	255.22	212.92	221.75
CF ⁺¹	(g)	1149.34	201.25	1115.04
CF ₂	(g)	-182.00	240.71	-191.63
CF ₂ ⁺¹	(g)	941.82	246.65	924.25
CH ₂ N ₄	(s) - tetrazole	237.23	0.00	0.00
CH ₃ CH ₂ CHOHCH ₃	(ℓ) - 2-butanol	-342.59	225.10	-177.03
CH ₃ CH ₂ CHOHCH ₃	(g) - 2-butanol	-292.63	358.99	-167.61
CH ₃ CHO	(ℓ) - acetaldehyde	-192.30	160.25	-128.20
CH ₃ CHO	(g) - acetaldehyde	-166.36	264.22	-133.30
CH ₃ CHOHCH ₃	(ℓ) - 2-propanol	-317.86	180.58	-180.29
CH ₃ CHOHCH ₃	(g) - 2-propanol	-272.42	309.91	-173.38
CH ₃ COCH ₃	(ℓ) - acetone	-247.61	200.41	-155.73
CH ₃ COCH ₃	(g) - acetone	-216.65	294.93	-153.05
CH ₃ COO ⁻¹	(aq)	-486.0	86.6	-369.3
CH ₃ COOH	(ℓ) - acetic acid	-484.13	159.83	-389.95
CH ₃ COOH	(g) - acetic acid	-434.84	282.50	-376.69
CH ₃ OCH ₃	(g) - dimethyl ether	-184.05	267.06	-112.93
CH ₃ OH	(ℓ) - methanol	-239.03	127.24	-166.82
CH ₃ OH	(g) - methanol	-201.08	239.70	-162.42
CH ₄	(g) - methane	-74.85	186.27	-50.84
Cl	(g)	121.29	165.06	105.31
Cl ⁻¹	(aq)	-167.15	56.48	-131.25
Cl ₂	(g)	0.00	222.97	0.00
Cl ₂ F ₆	(g)	-339.32	489.53	-237.23
Cl ₂ O	(g)	80.33	267.86	97.49
ClF	(g)	-54.48	217.78	-55.94

Formula	State	ΔH_f°	S°	ΔG_f°
ClF ₃	(g)	-158.99	281.50	-118.83
ClF ₃ •HF	(g)	-450.62	359.82	-384.09
ClF ₅	(g)	-238.49	310.62	-146.44
ClO	(g)	101.21	226.56	97.49
ClO ⁻¹	(aq)	-107.11	41.84	-36.82
ClO ₂	(g)	102.51	256.77	120.33
ClO ₂ ⁻¹	(aq)	-66.53	101.25	17.15
ClO ₃ ⁻¹	(aq)	-99.16	162.34	-3.35
ClO ₃ F	(g)	-27.15	278.86	44.85
ClO ₄ ⁻¹	(aq)	-129.33	182.00	-8.62
CN	(g)	435.14	202.55	405.01
CN ⁺¹	(g)	1802.89	213.34	1763.14
CN ⁻¹	(g)	60.67	195.81	38.74
CN ⁻¹	(aq)	150.62	94.14	172.38
CN ₂	(g)	581.58	231.58	573.21
CNBr	(g)	181.38	247.15	160.62
CNCl	(g)	132.21	235.48	125.48
CNI	(s)	160.25	128.87	169.37
CNI	(g)	225.10	256.60	196.15
Co	(s hexagonal)	0.00	30.04	0.00
Co	(s face centered cubic)	0.46	30.71	0.25
CO	(g)	-110.54	197.90	-137.28
Co(IO ₃) ₂ •2H ₂ O	(s)	-1081.98	267.78	-795.80
Co(NH ₃) ₆ ⁺³	(aq)	-584.92	146.44	-157.32
Co(OH) ₂	(s pink)	-539.74	79.50	-454.38
Co ⁺²	(aq)	-58.16	-112.97	-54.39
Co ⁺³	(aq)	92.05	-305.43	133.89
CO ₂	(g)	-393.51	213.68	-394.38
CO ₂	(aq undissoc)	-413.80	117.57	-386.02
CO ₃ ⁻²	(aq)	-677.14	-56.90	-527.90
Co ₃ O ₄	(s)	-910.02	114.22	-794.96
COBr ₂	(g)	-96.23	308.99	-110.88
CoCl ₂	(s)	-312.54	109.16	-269.87
COCl ₂	(g)	-220.92	283.76	-206.77

Formula	State	ΔH_f°	S°	ΔG_f°
CoCl ₂ •2H ₂ O	(s)	-922.99	188.28	-764.84
CoCl ₂ •6H ₂ O	(s)	-2115.43	343.09	-1725.48
CoCl ₃	(g)	-163.59	334.09	-154.52
CoF ₂	(s)	-692.03	81.96	-647.26
COF ₂	(g)	-640.15	258.74	-624.59
CoF ₃	(s)	-790.78	94.56	-719.65
CoO	(s)	-237.94	52.97	-214.22
COS	(g)	-138.41	231.46	-165.64
CoSi	(s)	-100.42	43.10	-98.74
CoSO ₄	(s)	-888.26	117.99	-782.41
CoSO ₄ •6H ₂ O	(s)	-2683.62	367.61	-2235.72
CoSO ₄ •7H ₂ O	(s)	-2979.93	406.06	-2473.83
Cr	(s)	0.00	23.62	0.00
Cr	(ℓ)	26.10	36.23	22.34
Cr	(g)	397.48	174.22	352.59
Cr ⁺²	(aq)	-143.5		
Cr ₂₃ C ₆	(s)	-364.84	610.03	-373.63
Cr ₂ N	(s)	-125.52	64.85	-102.22
Cr ₂ O ₃	(s)	-1134.70	81.17	-1053.11
Cr ₂ O ₃	(ℓ)	-1018.39	125.60	-950.06
Cr ₂ O ₇ ⁻²	(aq)	-1490.34	261.92	-1301.22
Cr ₃ C ₂	(s)	-85.35	85.44	-86.32
Cr ₇ C ₃	(s)	-161.92	200.83	-166.94
CrCl ₂	(s)	-395.39	115.31	-356.06
CrCl ₃	(s)	-556.47	123.01	-486.18
CrF ₃	(s)	-1158.97	93.89	-1087.84
CrN	(s)	-117.15	37.70	-92.80
CrN	(g)	505.01	230.45	471.91
CrO	(g)	188.28	239.16	154.60
CrO ₂	(g)	-75.31	269.11	-87.36
CrO ₂ Cl ₂	(ℓ)	-579.48	221.75	-510.87
CrO ₂ Cl ₂	(g)	-538.06	329.70	-501.66
CrO ₃	(g)	-292.88	266.06	-273.47
CrO ₄ ⁻²	(aq)	-881.15	50.21	-727.85

Formula	State	ΔH_f°	S°	ΔG_f°
CS	(g)	234.30	210.46	184.10
Cs	(s)	0.00	85.14	0.00
Cs	(l)	2.09	92.09	0.03
Cs	(g)	76.57	175.48	49.79
Cs ⁺¹	(aq)	-258.3	133.1	-292.0
CS ₂	(l)	89.70	151.34	65.27
CS ₂	(g)	117.07	237.78	66.90
Cs ₂ O	(g)	-92.05	317.98	-104.60
CsAl(SO ₄) ₂ •12H ₂ O	(s)	-6064.71	686.18	-5098.20
CsBr	(s)	-405.68	113.39	-384.93
CsCl	(s)	-442.83	101.18	-414.22
CsCl	(l)	-434.30	101.71	-406.27
CsCl	(g)	-240.16	255.98	-257.73
CsF	(s)	-554.80	88.28	-525.51
CsF	(l)	-543.84	90.08	-515.09
CsF	(g)	-356.48	243.09	-373.21
CsH	(g)	121.34	214.43	101.67
CsI	(s)	-336.81	125.52	-333.72
CsOH	(s)	-416.73	98.74	-362.33
CsOH	(l)	-406.02	118.45	-365.89
CsOH	(g)	-259.41	255.14	-259.83
Cu	(s)	0.00	33.15	0.00
Cu	(g)	338.32	166.27	298.61
Cu(C ₂ O ₄) ₂ ⁻²	(aq)	-1592.01	146.44	-1335.95
Cu(IO ₃) ₂ •H ₂ O	(s)	-692.03	247.27	-468.61
Cu(NH ₃) ⁺²	(aq)	-38.91	12.13	15.56
Cu(NH ₃) ₂ ⁺²	(aq)	-142.26	111.29	-30.46
Cu(NH ₃) ₃ ⁺²	(aq)	-245.60	199.58	-73.14
Cu(NH ₃) ₄ ⁺²	(aq)	-348.53	273.63	-111.29
Cu(OH) ₂	(s)	-450.20	108.37	-372.79
Cu ⁺¹	(aq)	71.67	40.58	50.00
Cu ⁺²	(aq)	64.77	-99.58	65.52
Cu ₂	(g)	484.17	241.46	431.96
Cu ₂ O	(s)	-168.62	93.14	-146.02

Formula	State	ΔH_f°	S°	ΔG_f°
Cu ₂ S	(s alpha)	-79.50	120.92	-86.19
CuBr	(s)	-104.60	96.11	-100.83
CuCl	(s)	-137.24	86.19	-119.87
CuCl ₂	(s)	-205.85	108.07	-161.92
CuCl ₂ •2H ₂ O	(s)	-821.32	167.36	-656.05
CuCN	(s)	94.98	90.00	108.37
CuCO ₃ •Cu(OH) ₂	(s malachite)	-1051.44	186.19	-893.70
CuF	(s)	-192.46	64.85	-171.54
CuF ₂	(s)	-548.94	68.62	-499.15
CuFe ₂ O ₄	(s)	-965.21	141.00	-858.81
CuFeO ₂	(s)	-532.62	88.70	-479.90
CuI	(s)	-67.78	96.65	-69.45
CuN ₃	(s)	279.07	100.42	344.76
CuO	(s)	-157.32	42.63	-129.70
CuS	(s)	-53.14	66.53	-53.56
CuSO ₄	(s)	-771.36	108.78	-661.91
CuSO ₄ •3H ₂ O	(s)	-1684.31	221.33	-1400.18
CuSO ₄ •5H ₂ O	(s)	-2279.65	300.41	-1880.06
CuSO ₄ •H ₂ O	(s)	-1085.83	146.02	-918.22
Dy	(s)	0.00	75.31	0.00
Dy	(g)	248.53	196.52	254.39
Dy ⁺³	(aq)	-699.0	-231.0	-665.0
Dy ₂ O ₃	(s)	-1863.14	149.79	-1771.51
DyC ₂	(s)	862.32	267.78	808.35
DyCl ₃ •6H ₂ O	(s)	-2870.22	401.66	-2451.82
Er	(s)	0.00	73.18	0.00
Er	(g)	317.15	195.48	281.16
Er ⁺³	(aq)	-705.4	-244.3	-669.1
Er ₂ O ₃	(s)	-1897.86	155.64	-1808.74
ErC ₂	(g)	578.23	263.59	524.67
ErCl ₃ •6H ₂ O	(s)	-2874.41	398.74	-2454.33
Eu	(s)	0.00	77.78	0.00
Eu	(g)	175.31	188.70	142.26
Eu ⁺²	(aq)	-523.00	4.18	-540.15

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Eu ⁺³	(aq)	-605.01	-221.75	-574.04
Eu ₂ O ₃	(s monoclinic)	-1651.42	146.44	-1556.87
Eu ₃ O ₄	(s)	-2271.91	205.02	-2142.21
EuC ₂	(s)	-62.76	100.42	-66.94
EuCl ₃ •6H ₂ O	(s)	-2784.87	407.10	-2366.05
EuO	(s)	-592.04	62.76	-556.89
F	(g)	78.99	158.66	61.92
F ⁻¹	(g)	-255.64	145.48	-262.34
F ₂	(g)	0.00	202.71	0.00
Fe	(s alpha)	0.00	27.28	0.00
Fe	(l)	13.13	34.29	11.05
Fe(CN) ₆ ⁻³	(aq)	561.91	270.29	729.27
Fe(CN) ₆ ⁻⁴	(aq)	455.64	94.98	694.92
Fe(CO) ₅	(l)	-774.04	338.07	-705.42
Fe(CO) ₅	(g)	-733.87	445.18	-697.26
Fe(OH) ⁺²	(aq)	-290.79	-142.26	-229.41
Fe ⁺²	(aq)	-89.12	-137.65	-78.87
Fe ⁺³	(aq)	-48.53	-315.89	-4.60
Fe ₂ (SO ₄) ₃	(s)	-2581.53	307.52	-2263.13
Fe ₂ O ₃	(s hematite)	-824.25	87.40	-742.24
Fe ₂ SiO ₄	(s fayalite)	-1479.88	145.18	-1379.05
Fe ₃ C	(s alpha-cementite)	25.10	104.60	20.08
Fe ₃ O ₄	(s magnetite)	-1118.38	146.44	-1015.46
Fe ₃ Si	(s)	-93.72	103.76	-94.56
Fe ₄ N	(s)	-10.46	156.06	3.77
Fe ₇ S ₈	(s pyrrhotite)	-736.38	485.76	-748.52
FeAl ₂ O ₄	(s)	-1966.48	106.27	-1849.33
FeAsS	(s)	-41.84	121.34	-50.21
FeBr ₂	(s)	-249.78	140.67	-237.23
FeCl ₂	(s)	-341.79	117.95	-302.34
FeCl ₃	(s)	-399.49	142.26	-334.05
FeCO ₃	(s siderite)	-740.57	92.88	-666.72
FeCr ₂ O ₄	(s)	-1444.74	146.02	-1343.90
FeF ₂	(s)	-702.91	86.99	-661.07

Formula	State	ΔH_f^0	S^0	ΔG_f^0
FeF ₃	(s)	-1041.82	98.32	-970.69
FeI ₂	(s)	-104.60	167.36	-112.97
FeMoO ₄	(s)	-1075.29	129.29	-974.87
FeO	(s)	-271.96	60.75	-251.46
FeOH ⁺¹	(aq)	-324.68	-29.29	-277.40
FePO ₄ •2H ₂ O	(s strengite)	-1888.24	171.25	-1657.70
FeS	(s pyrrhotite)	-100.00	60.29	-100.42
FeS ₂	(s pyrite)	-178.24	52.93	-166.94
FeSi	(s)	-73.64	46.02	-73.64
FeSi ₂	(s beta-lebanite)	-81.17	55.65	-78.24
FeSO ₄	(s)	-928.43	120.92	-825.08
FeSO ₄ •7H ₂ O	(s)	-3014.57	409.20	-2510.27
FeWO ₄	(s)	-1154.78	131.80	-1054.37
FNO ₃	(g)	10.46	292.88	73.64
Fr	(s)	0.00	94.14	0.00
Fr	(g)	72.80	181.92	46.65
Fr ₂ O	(s)	-338.90	156.90	-299.16
Ga	(s)	0.00	40.88	0.00
Ga	(g)	276.98	168.95	238.91
Ga(OH) ₃	(s)	-964.41	100.42	-831.36
Ga ₂ O ₃	(s rhombic)	-1089.10	84.98	-998.30
GaAs	(s)	-71.13	64.18	-67.78
GaBr	(g)	-49.79	251.88	-89.96
GaBr ₃	(s)	-386.60	179.91	-359.82
GaBr ₄ ⁻¹	(aq)	-661.91	35.98	-550.20
GaCl	(g)	-79.91	240.16	-106.27
GaCl ₃	(s)	-524.67	142.26	-454.80
GaF ₃	(s)	-1163.15	83.68	-1085.33
GaH	(g)	220.50	195.35	193.72
GaN	(g)	175.73	225.94	150.62
GaO	(g)	279.49	230.96	253.55
GaSb	(s)	-41.84	76.07	-38.91
Gd	(s)	0.00	68.07	0.00
Gd	(g)	397.48	194.22	359.82

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Gd ⁺³	(aq)	-686.18	-205.85	-661.07
Gd ₂ (SO ₄) ₃ •8H ₂ O	(s)	-6330.39	651.87	-5531.25
GdCl ₃ •6H ₂ O	(s)	-2866.04	408.19	-2451.82
Ge	(s)	0.00	31.09	0.00
Ge	(g)	376.56	167.79	335.98
Ge ₂	(g)	473.04	252.71	416.31
GeBr ₂	(g)	-62.76	330.95	-106.69
GeBr ₄	(ℓ)	-347.69	280.75	-331.37
GeBr ₄	(g)	-299.99	396.06	-317.98
GeCl	(g)	154.81	246.02	125.52
GeCl ₄	(ℓ)	-531.79	245.60	-462.75
GeCl ₄	(g)	-495.80	347.61	-457.31
GeF ₄	(g)	90.79	217.02	113.39
GeI ₂	(s)	-87.86	133.89	-83.68
GeI ₂	(g)	46.86	317.98	-4.18
GeI ₄	(s)	-141.84	271.12	-144.35
GeI ₄	(g)	-56.90	428.82	-106.27
GeO	(s brown)	-212.13	50.21	-237.23
GeO	(g)	-46.19	224.18	-73.18
GeO ₂	(s hexagonal)	-551.03	55.27	-497.06
GeP	(s)	-20.92	62.76	-16.74
GeS	(s)	-69.04	71.13	-71.55
GeS	(s)	92.05	234.30	41.84
H ⁺¹	(aq)	0.00	0.00	0.00
H ₂	(g)	0.00	130.59	0.00
H ₂ AsO ₄ ⁻¹	(aq)	-909.56	117.15	-753.29
H ₂ CS ₃	(ℓ)	25.10	223.01	27.82
H ₂ MoO ₄	(g)	-851.03	355.64	-787.43
H ₂ O	(ℓ)	-285.83	69.91	-237.18
H ₂ O	(g)	-241.82	188.72	-228.59
H ₂ O ₂	(ℓ)	-187.78	109.62	-120.42
H ₂ O ₂	(g)	-136.11	232.88	-105.48
H ₂ PO ₄ ⁻¹	(aq)	-1296.29	90.37	-1130.39
H ₂ S	(g)	-20.17	205.77	-33.05

Formula	State	ΔH_f^0	S^0	ΔG_f^0
H ₂ Se	(g)	29.71	218.91	15.90
H ₂ Se	(g)	29.71	218.91	15.90
H ₂ SiO ₃	(s)	-1188.67	133.89	-1092.44
H ₂ SO ₄	(ℓ)	-814.00	156.90	-690.07
H ₂ SO ₄	(g)	-740.57	289.11	-656.05
H ₂ VO ₄ ⁻¹	(aq)	-1174.03	121.34	-1020.90
H ₂ WO ₄	(s)	-1131.77	146.44	-1004.16
H ₂ WO ₄	(g)	-905.42	351.46	-839.73
H ₃ BO ₃	(s)	-1094.33	88.83	-969.01
H ₃ PO ₄	(s)	-1266.92	110.54	-1112.53
H ₃ PO ₄	(ℓ)	-1254.36	150.62	-1111.69
H ₄ SiO ₄	(s)	-1481.14	192.46	-1333.02
HAsO ₄ ⁻²	(aq)	-906.34	-1.67	-714.71
HBO ₂	(s monoclinic)	-794.25	37.66	-723.41
HBO ₂	(s orthorhombic)	-788.77	50.21	-721.74
HBr	(g)	-36.44	198.61	-53.51
HCl	(g)	-92.30	186.77	-95.31
HClO	(g)	-92.05	236.61	-79.50
HCN	(ℓ)	108.87	112.84	124.93
HCN	(g)	135.14	201.67	124.68
HCO ₃ ⁻¹	(aq)	-691.99	91.21	-586.85
HC ₂ O ₄ ⁻¹	(aq)	-818.4	149.4	-698.3
HCrO ₄ ⁻¹	(aq)	-878.22	184.10	-764.84
He	(g)	0.00	126.04	0.00
Hf	(s hexagonal)	0.00	43.56	0.00
Hf	(g)	619.23	186.78	576.56
HF	(g)	-271.12	173.68	-273.22
HfB ₂	(s)	-335.98	42.68	-332.21
HfCl ₄	(s)	-990.35	190.79	-901.32
HfF ₄	(s monoclinic)	-1930.50	112.97	-1830.50
HfO ₂	(s)	-1144.74	59.33	-1027.17
Hg	(ℓ)	0.00	76.02	0.00
Hg	(g)	61.32	174.85	31.85
Hg ⁺²	(aq)	171.1	-32.2	164.4

Formula	State	ΔH_f°	S°	ΔG_f°
Hg ₂ ⁺²	(aq)	172.4	84.5	153.5
Hg(CH ₃) ₂	(ℓ)	59.83	209.20	140.16
Hg(CH ₃) ₂	(g)	94.39	305.43	146.02
Hg ₂ (N ₃) ₂	(s)	594.13	205.02	746.43
Hg ₂ Br ₂	(s)	-206.90	218.74	-181.08
Hg ₂ Cl ₂	(s)	-265.22	192.46	-210.78
Hg ₂ CO ₃	(s)	-553.54	179.91	-468.19
Hg ₂ F ₂	(s)	-485.34	158.99	-426.77
Hg ₂ I ₂	(s)	-121.34	242.67	-111.00
Hg ₂ SO ₄	(s)	-743.12	200.66	-625.88
HgBr ₂	(s)	-170.71	170.33	-153.13
HgCl	(g)	84.10	259.78	62.76
HgCl ₂	(s)	-224.26	146.02	-178.66
HgF ₂	(s)	-422.58	116.32	-372.38
HgH	(g)	239.99	219.49	216.02
HgI	(g)	132.38	281.42	88.45
HgI ₂	(s red)	-105.44	181.17	-101.67
HgI ₂	(g)	-17.15	336.02	-59.83
HgO	(s red orthorhombic)	-90.83	70.29	-58.56
HgO	(s yellow)	-90.46	71.13	-58.43
HgO	(s red hexagonal)	-89.54	71.13	-58.24
HgS	(s red)	-58.16	82.42	-50.63
HgS	(s black)	-53.56	88.28	-47.70
HgSe	(s)	-46.02	94.14	-38.07
HgSe	(g)	75.73	267.02	31.38
HgSO ₄	(s)	-707.51	0.00	-594.13
HgTe	(s)	-33.89	106.69	-28.03
HI	(g)	26.48	206.48	1.72
HN ₂ O ₂ ⁻¹	(aq)	-39.33	142.26	76.15
HN ₃	(g)	294.14	238.86	328.03
HNCO	(g)	-116.73	238.11	-107.36
HNCS	(g)	127.61	247.69	112.97
HNO ₂	(g cis)	-76.57	249.32	-41.84
HNO ₂	(g trans)	-78.66	249.16	-43.93

Formula	State	ΔH_f°	S°	ΔG_f°
HNO ₃	(ℓ)	-173.22	155.60	-79.91
HNO ₃	(g)	-135.06	266.27	-74.77
Ho	(s)	0.00	75.31	0.00
Ho	(g)	300.83	195.48	264.85
Ho ⁺³	(aq)	-705.00	-226.77	-673.62
Ho ₂ O ₃	(s)	-1880.71	158.16	-1791.17
HoC ₂	(s)	-108.78	96.23	-111.71
HoCl ₃ •6H ₂ O	(s)	-2878.17	406.18	-2460.19
HO _F	(g)	-98.32	226.65	-85.65
HPO ₄ ⁻²	(aq)	-1292.14	-33.47	-1089.26
HReO ₄	(s)	-762.32	158.16	-664.84
HS ⁻¹	(aq)	-17.57	62.76	12.05
HSe ⁻¹	(aq)	15.90	79.50	43.93
HSeO ₃ ⁻¹	(aq)	-514.55	135.14	-411.54
HSeO ₃ ⁻¹	(aq)	-514.55	135.14	-411.54
HSeO ₄ ⁻¹	(aq)	-581.58	149.37	-452.29
HSeO ₄ ⁻¹	(aq)	-581.58	149.37	-452.29
HSO ₃ ⁻¹	(aq)	-626.22	139.75	-527.81
HSO ₃ F	(g)	-753.12	297.06	-690.36
HVO ₄ ⁻²	(aq)	-1158.97	16.74	-974.87
I	(g)	106.84	180.68	70.28
I ⁻¹	(aq)	-55.19	111.29	-51.59
I ₂	(s)	0.00	116.14	0.00
I ₂	(g)	62.44	260.58	19.36
I ₂ O ₅	(s)	-158.07	0.00	0.00
IBr	(g)	40.84	258.66	3.72
ICl	(ℓ)	-23.89	135.14	-13.60
ICl	(g)	17.78	247.44	-5.44
ICl ₃	(s)	-89.54	167.36	-22.34
IF	(g)	-95.65	236.06	-118.49
IF ₅	(g)	-840.15	334.72	-771.53
IF ₇	(g)	-943.91	346.44	-818.39
In	(s)	0.00	57.82	0.00
In	(g)	243.30	173.68	208.74

Formula	State	ΔH_f°	S°	ΔG_f°
In(OH) ⁺²	(aq)	-370.28	-87.86	-312.96
In(OH) ₂ ⁺²	(aq)	-619.23	25.10	-525.09
In ₂ (SO ₄) ₃	(s)	-2786.54	271.96	-2439.27
In ₂ O ₃	(s)	-925.79	104.18	-830.73
In ₂ S	(g)	62.76	317.98	12.97
In ₂ S ₃	(s)	-426.77	163.59	-412.54
InAs	(s)	-58.58	75.73	-53.56
InBr	(s)	-175.31	112.97	-169.03
InBr	(g)	-56.90	259.37	-94.31
InH	(g)	215.48	207.53	190.33
InI	(g)	7.53	267.23	-37.66
InI	(s)	-116.32	129.70	-120.50
InO	(g)	387.02	236.40	364.43
InP	(s)	-88.70	59.83	-76.99
InS	(s)	-138.07	66.94	-131.80
InSb	(s)	-30.54	86.19	-25.52
IO	(g)	175.06	245.39	149.79
IO ⁻¹	(aq)	-107.53	-5.44	-38.49
IO ₃ ⁻¹	(aq)	-221.33	118.41	-128.03
Ir	(s)	0.00	35.48	0.00
Ir	(g)	665.26	193.47	20.79
IrCl ₃	(s)	-245.60	112.97	-179.91
IrCl ₃	(g)	104.60	376.56	100.42
IrF ₆	(s)	-579.65	247.69	-461.66
IrF ₆	(g)	-543.92	357.73	-460.24
K	(s)	0.00	64.68	0.00
K	(l)	2.28	71.46	0.26
K	(g)	89.12	90.04	60.67
K ⁺¹	(aq)	-252.4	102.5	-283.3
K ₂ B ₄ O ₇	(s)	-3334.23	208.36	-3136.74
K ₂ CO ₃	(s)	-1150.18	155.52	-1064.41
K ₂ O	(s)	-363.17	94.14	-322.17
K ₂ O ₂	(s)	-495.80	112.97	-429.70
K ₂ SiO ₃	(s)	-1548.08	146.15	-1455.61

Formula	State	ΔH_f°	S°	ΔG_f°
K ₂ SO ₄	(s)	-1433.69	175.73	-1316.37
K ₃ AlCl ₆	(s)	-2092.00	376.56	-1938.45
KAl(SO ₄) ₂	(s)	-2465.38	204.60	-2235.47
KAl(SO ₄) ₂ •12H ₂ O	(s)	-6057.34	687.43	-5137.12
KAlCl ₄	(s)	-1196.62	196.65	-1096.21
KBF ₄	(s)	-1886.98	133.89	-1784.89
KBH ₄	(s)	-226.77	106.61	-159.83
KBO ₂	(s)	-994.96	80.00	-978.64
KBr	(s)	-392.17	96.44	-379.20
KBrO ₃	(s)	-332.21	149.16	-243.51
KCl	(g)	-215.89	239.49	-235.14
KCl	(s)	-435.89	82.68	-408.32
KClO ₃	(s)	-391.20	142.97	-289.91
KClO ₄	(s)	-430.12	151.04	-300.41
KCN	(s)	-113.47	127.78	-102.05
KF	(s)	-568.61	66.57	-538.90
KF•2H ₂ O	(s)	-1158.97	150.62	-1015.46
KH	(s)	-57.82	50.21	-34.06
KH ₂ AsO ₄	(s)	-1135.96	155.14	-991.61
KHF ₂	(s)	-931.36	104.27	-863.16
KI	(s)	-327.65	106.40	-322.29
KIO ₃	(s)	-508.36	151.46	-425.51
KMnO ₄	(s)	-813.37	171.71	-713.79
KNO ₃	(s)	-492.71	132.93	-393.13
KO ₂	(s)	-284.51	122.59	-240.58
KOH	(s)	-425.85	78.87	-379.07
Kr	(g)	0.00	163.98	0.00
La	(s)	0.00	56.90	0.00
La	(g)	430.95	182.26	393.59
La(IO ₃) ₃	(s)	-1397.46	259.41	-1131.35
La ⁺³	(aq)	-707.10	-217.57	-683.67
La ₂ (SeO ₄) ₃	(s)	-2879.43	338.90	-2633.83
La ₂ O ₃	(s)	-1793.68	127.32	-1705.82
La ₂ Te ₃	(s)	-723.83	231.63	-714.63

Formula	State	ΔH_f^0	S^0	ΔG_f^0
LaC ₂	(s)	-71.13	71.13	-72.38
LaC ₂	(g)	587.43	255.22	531.79
LaCl ₃ •7H ₂ O	(s)	-3178.58	462.75	-2713.32
LaS	(s)	-456.06	73.22	-451.45
Li	(ℓ)	2.38	33.93	0.93
Li	(g)	160.67	138.66	128.03
Li ⁺¹	(aq)	-278.5	13.4	-293.3
Li ₂ B ₄ O ₇	(s)	-3363.94	155.64	-3171.47
Li ₂ BeF ₄	(s)	-2273.59	130.54	-2171.50
Li ₂ CO ₃	(s)	-1216.04	90.17	-1132.19
Li ₂ O	(s)	-598.73	37.91	-561.91
Li ₂ O ₂	(s)	-632.62	56.48	-571.12
Li ₂ Si ₂ O ₅	(s)	-2561.03	125.52	-2417.10
Li ₂ SiO ₃	(s)	-1649.33	80.33	-1558.96
Li ₂ TiO ₃	(s)	-1670.67	91.76	-1579.88
Li ₃ AlF ₆	(s)	-3383.60	187.86	-3223.77
Li ₃ N	(s)	-197.48	37.66	-153.97
LiAlF ₄	(g)	-1853.51	326.35	-1811.67
LiAlH ₄	(s)	-117.15	87.86	-48.53
LiAlO ₂	(s)	-1189.51	53.35	-1127.17
LiBeF ₃	(s)	-1651.84	89.12	-1576.11
LiBH ₄	(s)	-190.46	75.81	-124.77
LiBO ₂	(s)	-1019.22	51.71	-963.16
LiBr	(s)	-350.91	74.06	-341.62
LiCl	(s)	-408.27	59.29	-384.05
LiCl•H ₂ O	(s)	-712.58	103.76	-632.62
LiClO ₄	(s)	-380.74	125.52	-253.97
LiF	(s)	-616.93	35.65	-588.69
LiH	(s)	-90.63	20.04	-68.45
LiI	(s)	-270.08	85.77	-269.66
LiO	(g)	83.68	210.87	60.46
LiOH	(s)	-484.93	42.80	-438.90
LiOH•H ₂ O	(s)	-789.81	92.05	-689.52
Lu	(s)	0.00	50.96	0.00

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Lu	(g)	427.60	184.68	404.59
Lu ⁺³	(aq)	-665.26	-263.59	-627.60
Lu ₂ O ₃	(s)	-1878.20	109.96	-1789.08
LuCl ₃ •6H ₂ O	(s)	-2830.89	376.14	-2411.24
Mg	(s)	0.00	32.69	0.00
Mg	(ℓ)	9.04	42.51	6.11
Mg	(g)	147.61	148.53	113.09
Mg(ClO ₄) ₂ •6H ₂ O	(s)	-2445.55	520.91	-1863.14
Mg(NO ₃) ₂	(s)	-790.65	164.01	-589.53
Mg(NO ₃) ₂ •6H ₂ O	(s)	-2613.28	451.87	-2080.70
Mg(OH) ₂	(s)	-924.66	63.18	-833.87
Mg(VO ₃) ₂	(s)	-2201.58	160.67	-2039.41
Mg ⁺¹	(g)	891.61	154.31	848.93
Mg ⁺²	(aq)	-466.85	-138.07	-454.80
Mg ₂ Al ₄ Si ₅ O ₁₉	(s cordierite)	-9108.57	407.10	-8598.12
Mg ₂ Ge	(s)	-108.78	86.48	-105.86
Mg ₂ Si	(s)	-77.82	66.94	-75.31
Mg ₂ SiO ₄	(s forsterite)	-2174.01	95.14	-2055.18
Mg ₂ TiO ₄	(s)	-2164.38	109.33	-2047.65
Mg ₂ V ₂ O ₇	(s)	-2835.92	200.41	-2645.29
Mg ₃ (PO ₄) ₂	(s)	-3780.66	189.20	-3538.83
Mg ₃ N ₂	(s)	-460.66	87.86	-400.83
Mg ₃ Si ₂ O ₅ (OH) ₄	(s chrysotile)	-4365.59	221.33	-4037.98
Mg ₃ Si ₄ O ₁₀ (OH) ₂	(s talc)	-5922.45	260.66	-5542.96
MgAl ₂ O ₄	(s)	-2312.92	88.70	-2190.32
MgBr ₂	(s)	-524.26	117.15	-503.75
MgBr ₂ •6H ₂ O	(s)	-2409.98	397.48	-2056.02
MgCl ₂	(s)	-641.62	89.62	-592.12
MgCl ₂ •6H ₂ O	(s)	-1279.72	179.91	-1118.13
MgCl ₂ •6H ₂ O	(s)	-2499.02	366.10	-2114.97
MgCO ₃	(s)	-1095.79	65.69	-1012.11
MgCr ₂ O ₄	(s)	-1783.64	106.02	-1669.00
MgF ₂	(s)	-1124.24	57.24	-1071.10
MgFe ₂ O ₄	(s)	-1428.42	123.85	-1317.12

Formula	State	ΔH_f°	S°	ΔG_f°
MgH ₂	(s)	-75.31	31.09	-35.98
MgI ₂	(s)	-364.01	129.70	-358.15
MgMoO ₄	(s)	-1400.85	118.83	-1295.74
MgO	(s microcrystal)	-597.98	27.91	-565.97
MgO	(s periclase)	-601.66	26.94	-569.02
MgS	(s)	-346.02	50.33	-341.83
MgSiO ₃	(s clinoenstatite)	-1549.00	67.78	-1462.14
MgSO ₄	(s)	-1284.91	91.63	-1170.68
MgSO ₄ •6H ₂ O	(s)	-3086.96	348.11	-2632.15
MgSO ₄ •7H ₂ O	(s)	-3388.71	372.38	-2871.90
MgSO ₄ •H ₂ O	(s)	-1602.05	126.36	-1428.84
MgTi ₂ O ₅	(s)	-2509.56	127.28	-2366.89
MgTiO ₃	(s)	-1572.77	74.56	-1484.06
MgWO ₄	(s)	-1532.60	101.17	-1420.89
Mn	(s alpha)	0.00	32.01	0.00
Mn	(s gamma)	1.55	32.43	1.42
Mn	(g)	280.75	173.59	238.49
Mn(IO ₃) ₂	(s)	-669.44	263.59	-520.49
Mn(OH) ₂	(s ppt/amorphous)	-695.38	99.16	-615.05
Mn ⁺²	(aq)	-220.83	-73.64	-228.03
Mn ₂ O ₃	(s)	-958.97	110.46	-881.15
Mn ₂ SiO ₄	(s)	-1730.50	163.18	-1632.18
Mn ₃ C	(s)	4.60	98.74	5.44
Mn ₃ O ₄	(s)	-1387.83	155.64	-1283.23
MnC ₂ O ₄ •2H ₂ O	(s)	-1628.41	200.83	-1415.03
MnCl ₂	(s)	-481.29	118.24	-440.53
MnCl ₂ •2H ₂ O	(s)	-1092.02	218.82	-942.24
MnCl ₂ •4H ₂ O	(s)	-1687.41	303.34	-1423.82
MnCl ₂ •H ₂ O	(s)	-789.94	174.05	-696.22
MnCO ₃	(s natural)	-894.12	85.77	-816.72
MnCO ₃	(s precipitated)	-882.82	112.97	-811.70
MnF ₂	(s)	-790.78	-748.94	92.26
MnO	(s)	-385.22	59.71	-362.92
MnO ₂	(s)	-520.03	53.05	-465.18

Formula	State	ΔH_f°	S°	ΔG_f°
MnO ₄ ⁻¹	(aq)	-541.41	191.21	-447.27
MnO ₄ ⁻²	(aq)	-652.70	58.58	-500.82
MnS	(s green)	-214.22	78.24	-218.40
MnSe	(s)	-106.69	90.79	-111.71
MnSiO ₃	(s)	-1320.89	89.12	-1240.56
MnSO ₄	(s)	-1065.25	112.13	-957.42
Mo	(s)	0.00	28.66	0.00
Mo	(g)	658.14	181.84	612.54
Mo(CO) ₆	(s)	-982.82	325.93	-877.80
Mo(CO) ₆	(g)	-912.11	489.53	-856.05
Mo ₃ Si	(s)	-96.23	106.27	-96.23
MoCl ₄	(s)	-480.32	223.84	-401.66
MoCl ₅	(s)	-527.18	238.49	-422.58
MoCl ₆	(s)	-523.00	255.22	-389.11
MoF ₆	(l)	-1585.53	259.66	-1473.10
MoF ₆	(g)	-1557.66	350.41	-1472.27
MoO ₂	(s)	-588.94	46.28	-533.04
MoO ₂ Cl ₂	(g)	-634.29	337.65	-598.31
MoO ₃	(s)	-745.09	77.74	-668.02
MoO ₃	(g)	-359.82	280.33	-343.09
MoO ₄ ⁻²	(aq)	-997.88	27.20	-836.38
MoOF ₄	(g)	-1255.20	330.54	-1192.44
MoS ₂	(s)	-235.14	62.59	-225.94
N	(g)	472.70	153.19	455.58
N ₂	(g)	0.00	191.50	0.00
N ₂ F ₂	(g cis)	66.94	259.83	108.78
N ₂ F ₂	(g trans)	81.17	262.55	120.50
N ₂ H ₂	(g cis diimide)	213.38	218.40	243.09
N ₂ H ₂	(g trans)	182.42	220.12	212.97
N ₂ H ₄	(l)	50.63	121.21	149.24
N ₂ H ₄	(g)	95.40	238.36	159.28
N ₂ O	(g)	82.05	219.74	104.18
N ₂ O ₂	(g)	170.37	287.52	202.88
N ₂ O ₂ ⁻²	(aq)	-17.15	27.61	138.91

Formula	State	ΔH_f^0	S^0	ΔG_f^0
N ₂ O ₃	(g)	83.72	312.17	139.41
N ₂ O ₄	(s)	-35.02	150.29	99.54
N ₂ O ₄	(ℓ)	-19.58	209.24	97.40
N ₂ O ₄	(g)	9.16	304.18	97.82
N ₂ O ₅	(s)	11.30	347.19	117.70
N ₃ ⁻¹	(aq)	275.14	107.95	348.11
Na	(s)	0.00	51.46	0.00
Na	(ℓ)	2.41	57.86	0.50
Na	(g)	107.74	153.59	77.32
Na ⁺¹	(aq)	-240.1	59.0	-261.9
Na ₂ B ₄ O ₇	(s)	-3276.07	189.54	-3083.61
Na ₂ CO ₃	(s)	-1130.94	135.98	-1047.67
Na ₂ O	(s)	-415.89	72.80	-376.56
Na ₂ O ₂	(s)	-513.38	94.81	-449.78
Na ₂ S	(s)	-373.21	97.91	-359.82
Na ₂ SiO ₃	(s)	-1518.79	113.80	-1426.74
Na ₂ SO ₃	(s)	-1090.35	146.02	-1002.07
Na ₂ SO ₄	(s)	-1384.49	149.49	-1266.83
Na ₂ SO ₄ •10H ₂ O	(s)	-4324.08	592.87	-3643.97
Na ₂ WO ₄	(s)	-1543.90	160.25	-1430.93
Na ₃ AlCl ₆	(s)	-1979.03	347.27	-1828.41
Na ₃ AlF ₆	(s cryolite)	-3309.54	238.49	-3142.18
Na ₃ AlF ₆	(ℓ)	-3238.42	286.60	-3088.21
NaAlCl ₄	(s)	-1142.23	188.28	-1041.82
NaAlO ₂	(s)	-1133.03	70.42	-1069.43
NaBH ₄	(s)	-191.84	101.38	-127.11
NaBO ₂	(s)	-975.71	73.51	-919.22
NaBr	(s)	-361.41	86.82	-349.28
NaCl	(s)	-410.99	72.38	-384.05
NaClO ₄	(s)	-382.75	142.26	-254.35
NaF	(s)	-575.30	51.21	-545.18
NaH	(s)	-56.44	40.00	-33.56
NaH	(g)	125.02	187.99	103.68
NaHCO ₃	(s)	-947.68	102.09	-851.86

Formula	State	ΔH_f^0	S^0	ΔG_f^0
NaI	(s)	-288.03	98.32	-284.51
NaNO ₃	(s)	-466.68	116.32	-365.89
NaOH	(s)	-426.73	64.43	-379.07
NaOH	(ℓ)	-416.89	75.86	-374.13
NaOH•H ₂ O	(s)	-732.91	84.52	-623.42
Nb	(s)	0.00	36.40	0.00
Nb	(g)	725.92	186.15	681.16
Nb ₂ C	(s)	-189.95	64.02	-185.77
Nb ₂ O ₅	(s high-temp. form)	-1899.54	137.24	-1766.07
NbC	(s)	-138.91	35.40	-136.82
NbCl ₅	(s)	-797.47	210.46	-683.25
NbCl ₅	(g)	-703.75	400.45	-646.01
NbCO ₂	(s)	-57.32	92.05	-55.23
NbCO ₃	(s)	-58.99	121.34	-57.32
NbCr ₂	(s)	-20.92	83.55	-20.92
NbF ₅	(s)	-1813.76	160.25	-1699.12
NbF ₅	(g)	-1739.71	321.75	-1678.20
NbFe ₂	(s)	-46.44	100.42	-49.37
NbN	(s)	-235.14	34.52	-201.67
NbO	(s)	-405.85	48.12	-378.65
NbO	(g)	213.38	238.86	184.10
NbO ₂	(s)	-796.22	54.52	-740.57
NbO ₂	(g)	-214.64	255.22	-218.82
NbOCl ₃	(s)	-879.48	158.99	-782.41
NbOCl ₃	(s)	-752.28	358.15	-717.97
Nd	(s)	0.00	71.55	0.00
Nd	(g)	327.61	189.28	292.46
Nd ⁺³	(aq)	-696.22	-206.69	-671.53
Nd ₂ (C ₂ O ₄) ₃ •10H ₂ O	(s)	-6782.26	-799.14	-5907.81
Nd ₂ O ₃	(s hexagonal)	-1807.91	154.39	-1720.88
Nd ₂ S ₃	(s)	-1188.26	185.27	-1172.36
NdC ₂	(g)	547.06	26.36	493.29
NdCl ₃ •6H ₂ O	(s)	-2874.41	417.14	-2460.61
Ne	(g)	0.00	146.23	0.00

Formula	State	ΔH_f^0	S^0	ΔG_f^0
NF ₃	(g)	-131.38	260.66	-89.96
NH	(g imidogen)	377.23	181.13	371.25
NH ₂	(g amidogen)	190.37	194.60	199.83
NH ₃	(g)	-46.11	192.34	-16.48
NH ₄	(s carbamate)	-645.05	133.47	-448.06
NH ₄ ⁺¹	(aq)	-132.51	113.39	-79.37
NH ₄ Al(SO ₄) ₂	(s)	-2352.24	216.31	-2038.44
NH ₄ Br	(s)	-270.83	112.97	-175.31
NH ₄ Cl	(s)	-314.43	94.56	-202.97
NH ₄ ClO ₄	(s)	-295.31	184.18	-88.91
NH ₄ F	(s)	-463.96	71.96	-348.78
NH ₄ H ₂ AsO ₄	(s)	-2189.49	172.05	-833.03
NH ₄ H ₂ PO ₄	(s)	-1445.07	151.96	-1210.56
NH ₄ HCO ₃	(s)	-849.35	120.92	-666.09
NH ₄ HF ₂	(s)	-802.91	115.52	-651.03
NH ₄ HS	(s)	-156.90	97.49	-50.63
NH ₄ HSe	(s)	-133.05	96.65	-23.43
NH ₄ I	(s)	-201.42	117.15	-112.55
NH ₄ N ₃	(s)	115.48	112.55	274.05
NH ₄ NO ₃	(s)	-365.56	151.08	-184.01
NH ₄ OH	(l)	-361.20	165.56	-254.14
NH ₄ ReO ₄	(s)	-945.58	232.63	-774.88
NH ₄ VO ₃	(s)	-1053.11	140.58	-888.26
Ni	(s)	0.00	29.87	0.00
Ni	(g)	429.70	182.08	384.51
Ni(CN) ₄ ⁻²	(aq)	367.77	217.57	471.96
Ni(CO) ₄	(l)	-633.04	313.38	-588.27
Ni(CO) ₄	(g)	-602.91	410.45	-587.27
Ni(IO ₃) ₂	(s)	-489.11	213.38	-326.35
Ni ⁺²	(aq)	-53.97	-128.87	-45.61
Ni ₃ S ₂	(s)	-202.92	133.89	-197.07
NiCl ₂	(s)	-305.33	97.65	-259.06
NiCl ₂ •2H ₂ O	(s)	-922.15	175.73	-760.23
NiCl ₂ •4H ₂ O	(s)	-1516.70	242.67	-1235.12

Formula	State	ΔH_f^0	S^0	ΔG_f^0
NiCl ₂ •6H ₂ O	(s)	-2103.17	344.34	-1713.52
NiF ₂	(s)	-651.45	73.60	-604.17
NiO	(s)	-239.74	37.99	-211.71
NiS	(s)	-82.01	52.97	-79.50
NiSO ₄	(s)	-872.91	97.07	-759.81
NiSO ₄ •6H ₂ O	(s tetrahedral)	-2682.82	332.17	-2224.97
NiSO ₄ •7H ₂ O	(s)	-2976.33	378.94	-2462.24
NO	(g)	90.25	210.65	86.57
NO ₂	(g)	33.18	239.95	51.30
NO ₂ ⁻¹	(aq)	-104.60	140.16	-37.24
NO ₂ Cl	(g)	12.55	272.04	54.39
NO ₂ F	(g)	-79.50	260.24	-37.24
NO ₃	(g)	70.92	252.55	114.47
NO ₃ ⁻¹	(aq)	-207.36	146.44	-111.34
NOBr	(g)	82.17	273.55	82.42
NOCl	(g)	51.71	261.58	66.07
NOF	(g)	-65.69	247.99	-50.29
NOF ₃	(g)	-163.18	278.40	-96.23
NpO ₂	(s)	-1029.26	80.33	-979.06
O	(g)	249.17	160.95	231.75
O ₂	(g)	0.00	205.03	0.00
O ₂ F ₂	(g)	19.79	268.11	61.42
O ₃	(g)	142.67	238.82	163.18
OCN ⁻¹	(aq)	-146.02	106.69	-97.49
OF	(g)	124.26	217.74	120.12
OF ₂	(g)	24.52	247.32	41.76
OH ⁻¹	(aq)	-229.99	-10.75	-157.28
Os	(s)	0.00	32.64	0.00
Os	(g)	790.78	192.46	744.75
OsCl ₃	(s)	-190.37	129.70	-121.34
OsCl ₄	(s)	-254.81	154.81	-158.99
OsO ₄	(s yellow)	-394.13	143.93	-305.01
OsO ₄	(s white)	-385.76	167.78	-303.76
OsO ₄	(g)	-337.23	293.72	-292.88

Formula	State	ΔH_f^0	S^0	ΔG_f^0
OsS ₂	(s)	-146.02	54.39	-133.89
P	(s red V)	0.00	22.80	0.00
P	(l red V)	18.07	42.89	12.09
P	(g red V)	333.88	163.09	292.04
P	(s alpha white)	17.45	41.09	12.01
P ₂	(g)	146.19	218.03	103.76
P ₂ H ₄	(ℓ)	-5.02	167.36	66.94
P ₂ O ₇ ⁻⁴	(aq)	-2271.08	-117.15	-1919.20
P ₄	(g)	128.87	128.87	72.38
P ₄ O ₁₀	(s hexagonal)	-2940.10	228.86	-2675.25
P ₄ S ₃	(s)	-154.81	200.83	-158.99
P ₄ S ₃	(ℓ)	-151.04	207.11	-156.90
P ₄ S ₃	(g)	-81.17	319.16	-120.50
Pb	(s)	0.00	64.77	0.00
Pb	(ℓ)	4.29	71.71	2.22
Pb	(g)	195.60	175.27	162.63
Pb ⁺²	(aq)	-1.7	10.5	-24.4
Pb(IO ₃) ₂	(s)	-495.39	312.96	-351.46
Pb(N ₃) ₂	(s monoclinic)	478.23	148.11	624.67
Pb(N ₃) ₂	(s orthorhombic)	476.14	149.37	622.16
Pb(ReO ₄) ₂ •2H ₂ O	(s)	-2234.26	309.62	-1903.72
Pb ₂ SiO ₄	(s)	-1376.54	187.02	-1267.75
Pb ₃ (PO ₄) ₂	(s)	-2595.34	353.13	-2432.58
Pb ₃ O ₄	(s)	-718.81	212.13	-601.66
PbB ₂ O ₄	(s)	-1556.45	130.54	-1450.17
PbB ₄ O ₇	(s)	-2857.67	166.94	-2667.30
PbBr	(g)	71.13	272.38	31.80
PbBr ₂	(s)	-277.40	161.13	-260.75
PbBr ₂	(ℓ)	-267.40	173.89	-254.55
PbBr ₂	(g)	-104.39	339.28	-140.83
PbBr ₄	(g)	-456.35	426.10	-473.29
PbC ₂ O ₄	(s)	-851.44	146.02	-750.19
PbCl	(g)	15.06	259.49	-9.62
PbCl ₂	(s)	-359.41	135.98	-314.18

Formula	State	ΔH_f^0	S^0	ΔG_f^0
PbCl ₂	(ℓ)	-344.26	153.18	-304.22
PbCl ₂	(g)	-174.05	317.11	-182.80
PbCl ₄	(g)	-552.41	381.54	-513.88
PbClF	(s)	-534.72	121.75	-488.27
PbCO ₃	(s)	-699.15	130.96	-625.51
PbF	(g)	-80.33	249.83	-105.02
PbF ₂	(s alpha)	-676.97	112.97	-630.95
PbF ₂	(s beta)	-676.13	114.43	-631.16
PbF ₄	(g)	-1133.45	333.51	-1092.69
PbI ₂	(s)	-175.39	174.85	-173.59
PbI ₂	(ℓ)	-157.69	198.91	-161.88
PbI ₄	(g)	-224.47	466.14	-274.89
PbMoO ₄	(s)	-1051.86	166.10	-951.44
PbO	(s red)	-218.99	66.53	-189.24
PbO	(s yellow)	-218.07	68.70	-188.66
PbO•PbCO ₃	(s)	-918.39	204.18	-816.72
PbO ₂	(s)	-274.47	71.80	-215.48
PBr ₃	(ℓ)	-184.51	240.16	-175.73
PBr ₃	(g)	-139.33	347.98	-162.76
PbS	(s)	-98.32	91.34	-96.73
PbSe	(s)	-102.93	102.51	-101.67
PbSeO ₄	(s)	-609.19	167.78	-505.01
PbSiO ₃	(s)	-1145.16	110.04	-1061.06
PbSiO ₄	(s)	-2023.80	84.01	-1909.58
PbSO ₄	(s)	-919.94	148.57	-813.20
PbTe	(s)	-70.71	110.04	-69.45
PCl ₃	(ℓ)	-319.66	217.15	-272.38
PCl ₃	(g)	-287.02	311.67	-267.78
PCl ₅	(g)	-342.67	364.47	-278.24
Pd	(s)	0.00	37.82	0.00
Pd	(g)	378.23	166.94	339.74
Pd ⁺²	(aq)	169.45	-117.15	176.56
Pd ₂ H	(s)	-19.66	91.63	-5.02
PdBr ₄ ⁻²	(aq)	-371.54	292.88	-317.98

Formula	State	ΔH_f^0	S^0	ΔG_f^0
PdCl ₂	(s)	-171.54	104.60	-125.10
PdI ₂	(s)	-63.60	150.62	-62.76
PdS	(s)	-75.31	46.02	-66.94
PdS ₂	(s)	-81.17	79.50	-74.48
PF ₃	(g)	-918.81	273.13	-897.47
PF ₅	(g)	-1576.95	300.83	-1508.75
PH	(g)	255.22	196.23	221.75
PH ₃	(g)	23.01	210.20	25.52
PH ₄ Br	(s)	-127.61	110.04	-47.70
PH ₄ I	(s)	-69.87	123.01	0.84
PN	(g)	32.47	211.08	10.33
PO	(g)	-12.13	222.68	-41.17
Po	(s)	0.00	62.76	0.00
Po	(g)	145.60	188.82	107.95
PO ₄ ⁻³	(aq)	-1277.38	-221.75	-1018.80
POBr ₃	(g)	-389.11	359.70	-390.91
POCl ₂ F	(g)	-748.94	320.29	-711.28
POCl ₃	(l)	-597.06	222.46	-520.91
POCl ₃	(g)	-542.25	325.35	-502.50
POClF ₂	(g)	-953.95	301.58	-912.11
POF ₃	(g)	-1236.79	285.31	-1193.70
PoO ₂	(s)	-251.04	71.13	196.65
Pr	(s)	0.00	73.22	0.00
Pr	(g)	355.64	189.70	320.91
Pr ⁺³	(aq)	-704.59	-209.20	-679.06
PrC ₂	(s)	549.36	261.92	496.64
PrH ₂	(s)	-198.32	56.90	-154.39
PSBr ₃	(g)	-263.59	372.71	-288.70
PSCl ₃	(g)	-363.17	337.23	-347.69
PSF ₃	(g)	-991.61	298.03	-973.62
Pt	(s)	0.00	41.63	0.00
Pt	(g)	565.26	192.30	520.49
Pt ⁺²	(aq)			254.8
PtCl ₄ ⁻²	(aq)	-503.34	167.36	-368.61

Formula	State	ΔH_f^0	S^0	ΔG_f^0
PtCl ₆ ⁻²	(aq)	-673.62	220.08	-489.53
PtO ₂	(g)	171.54	259.41	167.78
PtS	(s)	-81.59	55.06	-76.15
PtS ₂	(s)	-108.78	74.68	-99.58
Pu	(s)	0.00	51.46	0.00
Pu(SO ₄) ₂	(s)	-2200.78	163.18	-1969.45
Pu ⁺³	(aq)	-579.90	-163.18	-587.85
Pu ₂ C ₃	(s)	-7.11	169.45	-19.66
Pu ₂ O ₃	(s alpha)	-1799.12	138.91	-1720.46
Pu ₂ O ₃	(s beta)	-1715.44	152.30	-1632.26
Pu ₂ S ₃	(s)	-989.52	192.46	-985.46
PuBr ₃	(s)	-831.78	192.88	-804.58
PuCl ₃	(s)	-961.48	158.99	-892.74
PuF ₃	(s)	-1552.26	112.97	-1478.83
PuF ₄	(s)	-1732.18	161.92	-1644.73
PuF ₆	(s)	25.48	222.59	27.20
PuH ₂	(s)	-139.33	59.83	-101.67
PuH ₃	(s)	-138.07	64.85	-82.47
PuI ₃	(s)	-648.52	214.22	-644.00
PuN	(s)	-316.73	59.41	-289.45
PuO	(s)	-564.84	70.71	-538.90
PuO ₂	(s)	-1058.13	82.42	-1005.83
PuOBr	(s)	-888.68	119.24	-854.54
PuOCl	(s)	-931.78	108.78	-883.95
PuOF	(s)	-1128.84	91.63	-1078.93
PuOI	(s)	-827.60	126.36	-800.94
PuS	(s)	-439.32	78.24	-436.68
Ra	(s)	0.00	71.13	0.00
Ra	(g)	158.99	176.36	129.70
Ra ⁺²	(aq)	-527.6	54.0	-561.5
Ra(IO ₃) ₂	(s)	-1026.75	271.96	-868.60
Ra(NO ₃) ₂	(s)	-991.61	221.75	-796.22
RaCl ₂ •2H ₂ O	(s)	-1464.40	213.38	-1302.90
RaSO ₄	(s)	-1471.09	138.07	-1365.66

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Rb	(g)	85.81	170.00	55.86
Rb	(s)	0.00	69.45	0.00
Rb ⁺¹	(aq)	-251.2	121.5	-284.0
RbBr	(s)	-389.24	104.93	-378.15
RbCl	(s)	-435.05	94.56	-412.04
RbClO ₃	(s)	-392.46	151.88	-292.04
RbClO ₄	(s)	-434.59	160.67	-306.23
RbI	(s)	-328.44	118.03	-325.52
Re	(s)	0.00	36.86	0.00
Re	(g)	769.86	188.83	724.67
Re ⁻¹	(aq)	46.02	230.12	10.04
Re ₂ O ₇	(s)	-1240.14	207.11	-1066.08
Re ₂ O ₇	(g)	-1184.07	451.87	-994.12
ReCl ₃	(s)	-263.59	123.85	-188.28
ReCl ₆ ⁻²	(aq)	-761.49	251.04	-589.94
ReO ₂	(s)	-422.58	171.54	-368.19
ReO ₃	(s)	-605.01	257.32	-531.37
Rh	(s)	0.00	31.63	0.00
Rh	(g)	556.89	185.70	510.87
Rh ₂ O ₃	(s)	-285.77	110.88	-271.96
Rn	(g)	0.00	176.10	0.00
Ru	(s)	0.00	28.53	0.00
Ru	(g)	642.66	186.40	595.80
RuO ₄	(s)	-239.32	146.44	-152.30
RuO ₄	(ℓ)	-228.45	183.26	-152.30
RuO ₄	(g)	-184.10	289.95	-139.75
S	(s rhombic)	0.00	31.92	0.00
S	(ℓ)	1.42	35.15	0.38
S	(g)	277.36	167.74	236.86
S ₂	(g)	129.03	228.07	80.08
S ⁻²	(aq)	33.05	-14.64	85.77
S ₂ Cl ₂	(g)	-19.50	319.45	-29.25
S ₂ O ₄ ⁻²	(aq)	-753.54	92.05	-600.40
S ₂ O ₈ ⁻²	(aq)	-1338.88	248.11	-1110.43

Formula	State	ΔH_f^0	S^0	ΔG_f^0
S ₈	(g)	101.25	430.20	49.16
Sb	(s)	0.00	45.69	0.00
Sb	(g)	262.34	180.16	222.17
Sb ₂	(g)	235.56	254.81	187.02
Sb ₂ O ₄	(s)	-907.51	127.19	-795.80
Sb ₂ O ₅	(s)	-971.94	125.10	-829.27
Sb ₂ S ₃	(s black)	-174.89	182.00	-173.64
Sb ₂ Te ₃	(s)	-56.48	234.30	-55.23
Sb ₄	(g)	205.02	351.46	141.42
Sb ₄ O ₆	(s cubic)	-1440.55	220.92	-1268.17
Sb ₄ O ₆	(s orthorhombic)	-1417.12	246.02	-1253.11
SbBr ₃	(s)	-259.41	179.91	-239.32
SbCl ₃	(s)	-382.17	184.10	-323.72
SbCl ₃	(g)	-313.80	337.69	-301.25
SbCl ₅	(ℓ)	-440.16	301.25	-350.20
SbCl ₅	(g)	-394.34	401.83	-334.34
SbH ₃	(g)	145.11	232.67	232.67
Sc	(s)	0.00	34.64	0.00
Sc	(g)	377.82	174.68	336.06
Sc(OH) ₂ Cl	(s)	-1267.75	108.78	-1156.04
Sc(OH) ₃	(s)	-1363.57	100.42	-1233.44
Sc ⁺³	(aq)	-614.21	-255.22	-586.60
Sc ₂	(g)	648.10	255.22	592.45
Sc ₂ O ₃	(s)	-1908.82	76.99	103.97
ScCl	(g)	112.55	234.30	86.19
ScF	(g)	-138.91	222.21	-164.43
ScF ₂	(g)	-642.24	280.33	-655.21
ScF ₃	(s)	-1629.25	92.05	-1555.61
ScF ₃	(g)	-1246.83	300.41	-1234.28
SCN ⁻¹	(aq)	76.44	144.35	92.68
ScO	(g)	-57.24	224.47	-83.26
ScS	(g)	174.89	235.56	124.26
Se	(s hexagonal black)	0.00	42.44	0.00
Se	(g)	227.07	176.61	187.07

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Se ₂	(g)	146.02	251.88	96.23
SeF ₆	(g)	-1117.13	313.76	-1016.71
SeO	(g)	53.35	233.89	26.82
SeO ₃ ⁻²	(aq)	-509.19	12.55	-369.87
SeO ₄ ⁻²	(aq)	-599.15	53.97	-441.41
SF ₂ Cl	(g)	-1048.09	319.07	-949.35
SF ₄	(g)	-728.43	291.12	-684.84
SF ₆	(g)	-1220.89	291.71	-1115.87
Si	(s)	0.00	18.83	0.00
Si	(g)	455.64	167.86	411.29
Si ₂	(g)	594.13	229.79	535.55
Si ₂ H ₆	(g)	80.33	272.55	127.19
Si ₃ N ₄	(s)	-743.50	112.97	-581.58
SiBr ₄	(ℓ)	-457.31	277.82	-443.92
SiBr ₄	(g)	-415.47	377.77	-431.79
SiC	(s beta cubic)	-73.22	16.61	-70.71
SiC	(s alpha hexagonal)	-71.55	16.48	-69.04
SiC	(g)	615.05	236.61	552.29
SiCl ₂	(g)	-165.64	280.33	-177.19
SiCl ₄	(ℓ)	-687.01	239.74	619.90
SiCl ₄	(g)	-662.75	330.62	-622.58
SiF	(g)	7.11	225.68	-24.27
SiF ₂	(g)	-587.85	256.81	-598.31
SiF ₄	(g)	-1614.94	282.38	-1572.68
SiH ₃ Cl	(g)	-200.83	250.54	-179.91
SiH ₃ F	(g)	-439.32	238.28	-418.40
SiH ₄	(g)	30.54	204.51	56.90
SiHCl ₃	(ℓ)	-539.32	227.61	-482.58
SiN	(g)	486.52	216.65	456.10
SiO ₂	(s quartz)	-910.94	41.84	-856.67
SiO ₂	(s cristobalite)	-909.48	42.68	-855.88
SiO ₂	(s tridymite)	-909.06	43.51	-855.29
SiO ₂	(c amorphous)	-903.49	46.86	-850.73
SiOF ₂	(g)	-966.50	271.17	-949.77

Formula	State	ΔH_f^0	S^0	ΔG_f^0
SiS	(g)	112.47	223.55	60.92
SiS ₂	(s)	-213.38	80.33	-212.55
Sm	(s)	0.00	69.58	0.00
Sm	(g)	206.69	182.92	172.80
Sm ⁺³	(aq)	-691.62	-211.71	-666.51
Sm ₂ (SO ₄) ₃ •8H ₂ O	(s)	-6330.81	672.37	-5538.78
Sm ₂ O ₃	(s monoclinic)	-1822.97	151.04	-1734.69
SmC ₂	(s)	-71.13	96.23	-75.73
SmCl ₃ •6H ₂ O	(s)	-2870.22	414.22	-2456.43
Sn	(s white)	0.00	51.55	0.00
Sn	(s gray)	-2.09	44.14	0.13
Sn	(g)	302.08	168.38	267.36
Sn ⁺²	(aq)	-8.8	-17.0	-27.2
SnBr ₄	(s)	-377.40	264.43	-350.20
SnBr ₄	(g)	-314.64	411.83	-331.37
SnCl ₄	(ℓ)	-511.28	258.57	-440.16
SnH ₄	(g)	162.76	227.57	188.28
SnO	(s)	-285.77	56.48	-256.90
SnO ₂	(s)	-580.74	52.30	-519.65
SnS	(s)	-100.42	76.99	-98.32
SO	(g)	4.88	221.84	-21.17
SO ₂	(g)	-296.83	248.11	-300.19
SO ₂ Cl ₂	(g)	-354.80	311.83	-310.45
SO ₂ F ₂	(g)	-758.56	283.93	-712.12
SO ₃	(s beta)	-454.51	52.30	-368.99
SO ₃	(ℓ)	-441.04	95.60	-368.36
SO ₃	(g)	-395.72	256.65	-371.08
SO ₃ ⁻²	(aq)	-635.55	-29.29	-486.60
SO ₄ ⁻²	(aq)	-909.27	20.08	-744.63
SOCl ₂	(g)	-212.55	309.66	-198.32
Sr	(s)	0.00	52.30	0.00
Sr	(ℓ)	7.61	57.15	6.15
Sr	(g)	164.01	164.51	130.54
Sr ⁺²	(aq)	-545.8	-32.6	-559.5

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Sr(BrO ₃) ₂ •H ₂ O	(s)	-1104.58	280.33	-791.19
Sr(IO ₃) ₂	(s)	-1019.22	234.30	-855.21
Sr(IO ₃) ₂ •6H ₂ O	(s)	-2789.89	456.06	-2274.84
Sr(NO ₃) ₂	(s)	-978.22	194.56	-780.15
Sr(NO ₃) ₂ •4H ₂ O	(s)	-2154.76	369.03	-1730.71
Sr ₂ SiO ₄	(s)	-2304.55	153.13	-2191.16
Sr ₂ TiO ₄	(s)	-2287.39	158.99	-2178.61
Sr ₃ (AsO ₄) ₂	(s)	-3317.08	255.22	-3080.26
SrBr ₂	(s)	-717.97	143.43	-699.77
SrBr ₂ •6H ₂ O	(s)	-2531.32	405.85	-2174.42
SrCl ₂	(s)	-828.85	114.85	-781.03
SrCl ₂ •2H ₂ O	(s)	-1438.04	217.57	-1281.98
SrCl ₂ •6H ₂ O	(s)	-2623.79	390.79	-2241.24
SrCO ₃	(s strontianite)	-1220.05	97.07	-1140.14
SrF ₂	(s)	-1217.13	82.13	-1165.58
SrHPO ₄	(s)	-1821.71	121.34	-1688.66
SrI ₂	(s)	-561.49	159.12	-558.73
SrO	(s)	-592.04	55.52	-562.41
SrS	(s)	-453.13	68.20	-448.52
SrSiO ₃	(s)	-1633.85	96.65	-1549.75
SrSO ₄	(s)	-1453.10	117.57	-1340.97
SrTiO ₃	(s)	-1672.39	108.78	-1588.41
SrWO ₄	(s)	-1639.71	138.07	-1531.34
SrZrO ₃	(s)	-1767.32	115.06	-1682.80
Ta	(s)	0.00	41.51	0.00
Ta	(g)	781.99	185.10	739.31
Ta ₂ C	(s)	-213.38	86.61	-212.55
Ta ₂ H	(s)	-32.64	79.08	-69.04
Ta ₂ O ₅	(s beta)	-2045.98	143.09	-1911.25
TaC	(s)	-146.44	42.30	-144.77
TaO	(g)	251.04	241.84	221.75
TaO ₂	(g)	-200.83	280.33	-209.20
Tb	(s)	0.00	73.22	0.00
Tb	(g)	388.69	203.47	349.78

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Tb ⁺³	(aq)	-682.83	-225.94	-651.87
TbC ₂	(s)	885.75	267.78	831.36
TbCl ₃ •6H ₂ O	(s)	-2859.35	403.34	-2440.95
Tc	(s)	0.00	33.47	0.00
Te	(s)	0.00	49.71	0.00
Te	(g)	196.73	182.63	157.11
Te ₂	(g)	168.20	268.03	117.99
TeO	(g)	65.27	241.42	38.49
TeO ₂	(s)	-322.59	79.50	-270.29
TeSe	(g)	158.99	265.68	108.78
Th	(s)	0.00	56.90	0.00
Th ₃ N ₄	(s)	-1288.67	178.66	-1179.89
ThO ₂	(s)	-1221.73	65.27	-1171.94
Ti	(s alpha)	0.00	30.67	0.00
Ti	(s beta)	6.00	36.36	4.29
Ti ₂ O ₃	(s)	-1520.88	78.78	-1434.28
Ti ₃ O ₅	(s alpha)	-2459.36	129.29	-2317.52
Ti ₄ O ₇	(s)	-3404.52	198.74	-3213.31
TiB	(s)	-160.25	34.73	-159.83
TiB ₂	(s)	-280.33	28.45	-271.96
TiBr ₂	(s)	-405.85	108.37	-383.25
TiBr ₃	(s)	-550.20	176.44	-525.51
TiBr ₄	(s)	-617.98	243.63	-590.78
TiBr ₄	(ℓ)	-605.42	284.18	-589.94
TiBr ₄	(g)	-550.20	398.94	-569.02
TiC	(s)	-184.10	24.23	-180.33
TiCl ₂	(s)	-513.80	87.45	-464.42
TiCl ₃	(s)	-720.90	139.75	-653.54
TiCl ₄	(s)	-815.04	208.78	-735.13
TiCl ₄	(ℓ)	-804.16	252.34	-737.22
TiCl ₄	(g)	-763.16	354.80	-726.76
TiF ₂	(g)	-686.18	255.22	-694.54
TiF ₃	(s)	-1435.11	87.86	-1362.31
TiF ₄	(s)	-1649.33	133.97	-1559.38

Formula	State	ΔH_f^0	S^0	ΔG_f^0
TiF ₄	(g)	-1551.43	314.64	-1515.44
TiH ₂	(s)	-144.35	29.71	-105.02
TiI ₂	(s)	-267.78	121.34	-259.41
TiI ₃	(s)	-322.17	192.46	-317.98
TiI ₄	(s)	-375.72	246.02	-370.70
TiI ₄	(l)	-348.32	311.83	-362.92
TiN	(s)	-338.07	30.25	-309.62
TiO	(s alpha)	-542.66	34.77	-513.38
TiO ₂	(s anatase)	-938.72	49.92	-883.33
TiO ₂	(s rutile)	-944.75	50.33	-889.52
TiOCl ₂	(g)	-545.59	320.91	-535.13
TiOF ₂	(g)	-924.66	284.60	-907.93
Tl	(s)	0.00	64.18	0.00
Tl	(g)	182.21	180.85	147.44
Tl ₂ CO ₃	(s)	-699.98	155.23	-614.63
Tl ₂ CrO ₄	(s)	-944.75	282.42	-861.49
Tl ₂ O	(s)	-178.66	125.52	-147.28
Tl ₂ S	(s)	-97.07	150.62	-93.72
Tl ₂ Se	(s)	-58.58	171.54	-58.99
Tl ₂ SeO ₄	(s)	-631.78	234.30	-528.86
Tl ₂ SO ₄	(s)	-931.78	230.54	-830.48
TlBr	(s)	-173.22	120.50	-167.36
TlBrO ₃	(s)	-136.40	168.62	-53.14
TlCl	(s)	-204.14	111.25	-184.93
TlCNS	(s thiocyanate)	28.45	163.18	38.53
TlI	(s)	-123.85	127.61	-125.39
TlN ₃	(s)	233.47	146.86	294.47
TlNO ₃	(s)	-243.93	160.67	-152.46
TlO ₃	(s)	-267.36	176.56	-191.88
TlOH	(s)	-238.91	87.86	-195.81
Tm	(s)	0.00	74.01	0.00
Tm	(g)	232.21	190.00	197.48
Tm ⁺³	(aq)	-697.89	-242.67	-661.91
Tm ₂ O ₃	(s)	-1888.66	139.75	-1794.52

Formula	State	ΔH_f^0	S^0	ΔG_f^0
U	(s)	0.00	50.33	0.00
U ⁺³	(aq)	-489.1	-188.0	-476.2
U ⁺⁴	(aq)	-591.2	-410.0	-531.9
U ₂ N ₃	(s)	-891.19	121.34	-811.70
UBr ₃	(s)	-711.70	205.02	-689.10
UBr ₄	(s)	-822.57	234.30	-788.68
UCl ₃	(s)	-891.19	158.95	-823.83
UCl ₄	(s)	-1051.02	198.32	-962.32
UCl ₅	(s)	-1096.63	242.67	-993.28
UCl ₆	(s)	-1139.72	285.77	-1010.44
UF ₃	(s)	-1493.69	117.15	-1418.38
UF ₄	(s)	-1853.51	151.04	-1761.46
UF ₅	(s)	-2041.79	197.90	-1928.82
UF ₆	(s)	-2112.92	227.61	-2029.24
UH ₃	(s)	-127.19	63.89	-72.59
UI ₃	(s)	-479.90	234.30	-482.42
UI ₄	(s)	-531.37	280.33	-527.60
UICl ₃	(s)	-920.06	225.94	-855.21
UN	(s)	-334.72	62.34	-313.80
UO ₂	(s)	-1129.68	77.82	-1075.29
UO ₂ (NO ₃) ₂	(s)	-1377.37	276.14	-1142.65
UO ₂ (NO ₃) ₂ •2H ₂ O	(s)	-2008.32	355.64	-1659.37
UO ₂ (NO ₃) ₂ •3H ₂ O	(s)	-2310.40	393.30	-1902.46
UO ₂ (NO ₃) ₂ •6H ₂ O	(s)	-3197.83	505.64	-2615.00
UO ₂ (NO ₃) ₂ •H ₂ O	(s)	-1693.68	317.98	-1402.90
UO ₂ SO ₄ •3H ₂ O	(s)	-2789.89	263.59	-2451.82
UO ₃	(s)	-1263.57	98.62	-1184.07
V	(s)	0.00	28.91	0.00
V	(g)	514.21	182.19	453.21
V ₂ O ₃	(s)	-1228.00	98.32	-1139.30
V ₂ O ₄	(s alpha)	-1427.16	102.51	-1318.38
V ₂ O ₅	(s)	-1550.59	130.96	-1419.63
V ₃ O ₅	(s)	-1945.56	163.18	-1815.86
V ₄ O ₇	(s)	-2656.84	217.57	-2472.74

Formula	State	ΔH_f^0	S^0	ΔG_f^0
VCl ₂	(s)	-451.87	97.07	-405.85
VCl ₃	(s)	-580.74	130.96	-511.28
VCl ₄	(l)	-569.44	255.22	-503.75
VCl ₄	(g)	-525.51	362.33	-492.04
VF ₅	(l)	-1480.30	175.73	-1373.19
VF ₅	(g)	-1433.86	320.79	-1369.84
VN	(s)	-217.15	37.28	-191.21
VO	(s)	-431.79	38.91	-404.17
VO	(g)	104.60	233.47	75.31
VO ⁺²	(aq)	-486.60	-133.89	-446.43
VO ₂	(s)	-717.56	62.59	51.46
VO ₂ ⁺¹	(aq)	-649.78	-42.26	-587.02
VO ₃ ⁻¹	(aq)	-888.26	50.21	-783.66
VOCl ₃	(l)	-734.71	205.02	-668.60
VOCl ₃	(g)	-695.59	344.18	-659.31
VOSCN ⁺¹	(aq)	-410.03	33.47	-359.82
VOSO ₄	(s)	-1309.17	108.78	-1169.85
W	(s)	0.00	32.68	0.00
W	(l)	46.94	45.69	40.42
W	(g)	851.03	173.85	808.77
W ₃ O ₈	(g)	-1711.26	493.71	-1581.55
WBr ₅	(s)	-311.71	271.96	-269.45
WBr ₆	(s)	-343.09	313.80	-288.70
WCl ₂	(s)	-257.32	130.54	-220.08
WCl ₄	(s)	-443.50	198.32	-359.82
WCl ₅	(s)	-514.63	217.57	-401.66
WCl ₆	(s)	-594.13	238.49	-456.06
WF ₆	(l)	-1748.49	249.37	-1631.76
WF ₆	(g)	-961.06	347.69	-835.96
WO ₂	(s)	-589.69	50.54	-533.88
WO ₂ Cl ₂	(s)	-780.32	200.83	-702.91
WO ₃	(s)	-842.91	75.90	-764.12
WOCl ₄	(s)	-671.11	172.80	-549.36
WOCl ₄	(g)	-573.21	376.98	-510.45

Formula	State	ΔH_f^0	S^0	ΔG_f^0
WOF ₄	(g)	-1334.70	334.72	-1276.12
Xe	(g)	0.00	169.57	0.00
Y	(s)	0.00	44.43	0.00
Y	(g)	421.33	179.37	381.16
Y(ReO ₄) ₃	(s)	-2936.75	368.19	-2633.41
Y ⁺³	(aq)	-723.41	-251.04	-656.05
Y ₂	(g)	684.08	267.78	630.53
Y ₂ O ₃	(s)	-1905.31	99.08	-1816.65
Yb	(s)	0.00	59.87	0.00
Yb	(g)	152.30	173.01	118.41
Yb ⁺³	(aq)	-674.46	238.49	-643.92
Yb ₂ O ₃	(s)	-1814.60	133.05	-1726.74
YbC ₂	(s)	-74.89	79.50	-77.40
YbCl ₃ •6H ₂ O	(s)	-2845.96	395.81	-2429.23
YBr ⁺²	(aq)	-852.70	-179.91	-801.65
YC ₂	(s)	-108.78	54.39	-108.78
YC ₂	(g)	596.64	255.22	537.23
YCl	(g)	200.00	244.05	173.64
YCl ⁺²	(aq)	-895.38	-192.46	-831.36
YCl ₃ •6H ₂ O	(s)	-2892.40	384.93	-2477.35
YF	(g)	-138.07	231.71	-163.18
YF ₃	(s)	-1718.79	100.42	-1644.73
YF ₃	(g)	-1288.67	311.71	-1277.79
YH ₂	(s)	-156.90	38.37	-116.32
YH ₃	(s)	-197.90	41.92	-138.91
YO	(g)	-38.91	233.80	-64.85
YS	(g)	174.47	242.67	124.26
Zn	(s)	0.00	41.63	0.00
Zn	(g)	130.73	160.87	95.18
Zn ⁺²	(aq)	-153.9	-112.1	-147.1
Zn(ClO ₄) ₂ •6H ₂ O	(s)	-2133.38	545.59	-1555.61
Zn(NO ₃) ₂ •6H ₂ O	(s)	-2306.64	456.89	-1773.14
Zn(OH) ₂	(s beta)	-641.91	81.17	-553.17
Zn(OH) ₂	(s epsilon)	-639.06	81.59	-555.13

Formula	State	ΔH_f^0	S^0	ΔG_f^0
Zn ₂ SiO ₄	(s)	-1636.74	131.38	-1523.23
ZnBr ₂	(s)	-328.65	138.49	-312.13
ZnBr ₂	(s)	-405.85	117.15	-380.74
ZnBr ₂ •2H ₂ O	(s)	-937.22	198.74	-799.56
ZnC ₂ O ₄ •2H ₂ O	(s)	-1564.82	195.39	-1345.99
ZnCl ₂	(s)	-415.05	108.37	-369.43
ZnCO ₃	(s)	-812.78	82.42	-731.57
ZnF ₂	(s)	-764.42	73.68	-713.37
ZnI ₂	(s)	-208.03	161.08	-208.95
ZnO	(s)	-348.28	43.64	-318.32
ZnS	(s sphalerite)	-205.98	57.74	-201.29
ZnSe	(s)	163.18	83.68	163.18
ZnSeO ₃ •H ₂ O	(s)	-930.94	163.18	-792.87
ZnSO ₄	(s)	-982.82	128.03	-874.46
ZnSO ₄ •6H ₂ O	(s)	-2777.46	363.59	-2324.80
ZnSO ₄ •7H ₂ O	(s)	-3077.75	388.69	-2563.08
ZnSO ₄ •H ₂ O	(s)	-1304.49	138.49	-1132.02
Zr	(s alpha hexagonal)	0.00	38.99	0.00
Zr	(s beta)	7.15	46.65	4.85
ZrB ₂	(s)	-322.59	35.94	-317.98

Formula	State	ΔH_f^0	S^0	ΔG_f^0
ZrBr ₃	(s)	-635.97	172.13	-606.68
ZrBr ₄	(s)	-759.81	224.68	-724.25
ZrC	(s)	-196.65	33.30	-193.30
ZrCl ₂	(s)	-430.95	108.78	-384.93
ZrCl ₃	(s)	-715.46	145.60	-644.34
ZrCl ₄	(s)	-980.52	181.59	-889.94
ZrF ₂	(s)	-962.32	75.31	-912.11
ZrF ₃	(s)	-1401.64	87.86	-1326.33
ZrF ₄	(s)	-1911.25	104.68	-1810.00
ZrH ₂	(s)	-169.03	35.02	-128.87
ZrI ₂	(s)	-259.41	150.21	-258.15
ZrI ₃	(s)	-397.48	204.60	-394.55
ZrI ₄	(s)	-484.93	256.94	-480.74
ZrN	(s)	-364.84	38.87	-336.39
ZrO ₂	(s monoclinic)	-1097.46	50.38	-1039.72
ZrSiO ₄	(s)	-2023.80	84.01	0.00

Dean, John A. *Lange's Handbook of Chemistry, 11th ed.*; McGraw-Hill: New York, New York, 1979; pp 9:4-9:128.

Lide, David R. *CRC Handbook, 84th ed.*; CRC Press: Boca Raton, Florida, 2003; pp 5:5-5:60, 5:85-5:86.