

Selected Thermodynamic Values at 298.15 K

Species	ΔH_f^0 (kJ/mol)	S^0 (J/mol·K)	ΔG_f^0 (kJ/mol)	Species	ΔH_f^0 (kJ/mol)	S^0 (J/mol·K)	ΔG_f^0 (kJ/mol)
Aluminum				Cesium			
Al(s)	0.00	28.30	0.00	Cs ⁺ (aq)	-248	133	-282
AlCl ₃ (s)	-704.20	110.70	-628.90	CsF(aq)	-568.60	123.00	-558.5
Al ₂ O ₃ (s)	-1676.00	50.92	-1582.00	Chlorine			
Barium				Cl(g)	121.70	165.10	105.70
BaCl ₂ (s)	-860.10	126.00	-810.90	Cl ⁻ (g)	-226		
BaSO ₄ (s)	-1465.00	132.00	-1353.00	Cl ₂ (g)	0.00	223.00	0.00
Beryllium				HCl(g)	-92.31	186.80	-95.3
Be(s)	0.00	9.54	0.00	HCl(aq)	-167.40	55.10	-131.20
Be(OH) ₂ (s)	-907.10			Chromium			
Bromine				Cr(s)	0.00	23.80	0.00
Br(g)	111.80	174.90	82.40	(NH ₄) ₂ Cr ₂ O ₇ (s)	-1807.00		
Br ₂ (l)	0.00	152.23	0.00	Copper			
Br ₂ (g)	30.91	245.40	3.14	Cu(s)	0.00	33.15	0
BrF ₃ (g)	-255.60	292.40	-229.50	CuO(s)	-157.00	42.63	-130.00
HBr(g)	-36.40	198.59	-53.43	Fluorine			
Calcium				F(g)	-322.00		
Ca(s)	0.00	41.60	0.00	F(aq)	-332.60		-278.80
Ca(g)	192.60	154.80	158.90	F(g)	78.99	158.60	61.92
Ca ²⁺ (g)	1920.00			F ₂ (g)	0.00	202.7	0
CaC ₂ (s)	-62.80	70.30	-67.80	HF(g)	-271.00	173.70	-273
CaCO ₃ (s)	-1207.00	92.90	-1129.00	HF(aq)	-320.80		-296.80
CaCl ₂ (s)	-795.00	114.00	-750.20	Hydrogen			
CaF ₂ (s)	-1215.00	68.87	-1162.00	H(g)	218.00	114.60	203.3
CaH ₂ (s)	-189.00	42.00	-150.00	H ₂ (g)	0.00	130.60	0.00
CaO(s)	-635.50	40.00	-604.20	H ₂ O(l)	-285.80	69.91	-237.2
CaS(s)	-482.40	56.50	-477.40	H ₂ O(g)	-241.80	188.70	-228.60
Ca(OH) ₂ (s)	-986.60	76.10	-896.80	H ₂ O ₂ (l)	-187.80	109.60	-120.4
Ca(OH) ₂ (aq)	-1002.80	76.15	-867.60	Iodine			
CaSO ₄ (s)	-1433.00	107.00	-1320.00	I(g)	106.60	180.66	70.16
Carbon				I ₂ (s)	0.00	116.10	0
C(s, graphite)	0.00	5.74	0.00	I ₂ (g)	62.44	260.60	19.36
C(s, diamond)	1.90	2.38	2.90	ICl(g)	17.78	247.40	-5.52
C(g)	716.70	158.00	671.30	HI(g)	26.50	206.50	1.72
CCl ₄ (l)	-135.40	216.40	-65.27	Iron			
CCl ₄ (g)	-103.00	309.70	-60.63	Fe(s)	0.00	27.30	0.00
CHCl ₃ (l)	-134.50	202.00	-73.72	FeO(s)	-272.00		
CHCl ₃ (g)	-103.10	295.60	-70.37	Fe ₂ O ₃ (s, hematite)	-824.20	87.40	-742.20
CH ₄ (g)	-74.81	186.20	-50.75	Fe ₃ O ₄ (s, magnetite)	-1118.00	146.00	-1015.00
C ₂ H ₂ (g)	226.70	200.80	209.20	FeS ₂ (s)	-177.50	122.20	-166.70
C ₂ H ₄ (g)	52.26	219.50	68.12	Fe(CO) ₅ (l)	-774.00	338.00	-705.40
C ₂ H ₆ (g)	-84.86	229.50	-32.90	Fe(CO) ₅ (g)	-733.80	445.20	-697.30
C ₃ H ₈ (g)	-103.80	269.90	-23.49	Lead			
C ₆ H ₆ (l)	49.03	172.80	124.50	Pb(s)	0.00	64.81	0.00
C ₈ H ₁₈ (l)	-268.80			PbCl ₂ (s)	-359.40	136.00	-314.10
C ₂ H ₅ OH(l)	-277.70	161.00	-174.90	PbO(s, yellow)	-217.30	68.70	-187.90
C ₂ H ₅ OH(g)	-235.10	282.60	-168.60	Pb(OH) ₂ (s)	-515.90	88.00	-420.90
CO(g)	-110.50	197.60	-137.20	PbS(s)	-100.40	91.20	-98.70
CO ₂ (g)	-393.50	213.60	-394.40	Lithium			
CS ₂ (g)	117.40	237.70	67.15	Li(s)	0.00	28.00	0.00
COCl ₂ (g)	-223.00	289.20	-210.50	LiOH(s)	-487.23	50.00	-443.90
				LiOH(aq)	-508.40	4.00	-451.10

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Magnesium				Rubidium			
Mg(s)	0.00	32.50	0.00	Rb(s)	0.00	76.78	0.00
MgCl ₂ (s)	-641.80	89.50	-592.30	RbOH(aq)	-481.16	110.75	-441.24
MgO(s)	-601.80	27.00	-569.60	Silicon			
Mg(OH) ₂ (s)	-924.70	63.14	-833.70	Si(s)	0.00	18.80	0.00
MgS(s)	-347.00			SiBr ₄ (l)	-457.30	277.80	-443.90
Mercury				SiC(s)	-65.30	16.60	-62.80
Hg(l)	0.00	76.02	0.00	SiCl ₄ (g)	-657.00	330.60	-617.00
HgCl ₂ (s)	-224.00	146.00	-179.00	SiH ₄ (g)	34.30	204.50	56.90
HgO(s, red)	-90.83	70.29	-58.56	SiF ₄ (g)	-1615.00	282.40	-1573.00
HgS(s, red)	-58.20	82.40	-50.60	SiI ₄ (g)	-132.00		
Nickel				SiO ₂ (s)	-910.90	41.84	-856.70
Ni(s)	0.00	30.10	0.00	H ₂ SiO ₃ (s)	-1189.00	134.00	-1092.00
Ni(CO) ₄ (g)	-602.90	410.40	-587.30	Na ₂ SiO ₃ (s)	-1079.00		
NiO(s)	-244.00	38.60	-216.00	H ₂ SiF ₆ (aq)	-2331.00		
Nitrogen				Silver			
N ₂ (g)	0.00	191.50	0.00	Ag(s)	0.00	42.55	0.00
N(g)	472.704	153.19	455.579	Sodium			
NH ₃ (g)	-46.11	192.30	-16.50	Na(s)	0.00	51.00	0.00
N ₂ H ₄ (l)	50.63	121.20	149.20	Na(g)	108.70	153.60	78.11
(NH ₄) ₃ AsO ₄ (aq)	-1268.00			Na ⁺ (g)	601.00		
NH ₄ Cl(s)	-314.40	94.60	-201.50	NaBr(s)	-359.90		
NH ₄ Cl(aq)	-300.20			NaCl(s)	-411.00	72.38	-384.00
NH ₄ I(s)	-201.40	117.00	-113.00	NaCl(aq)	-407.10	115.50	-393.00
NH ₄ NO ₃ (s)	-365.60	151.10	-184.00	Na ₂ CO ₃ (s)	-1131.00	136.00	-1048.00
NO(g)	90.25	210.70	86.57	NaOH(s)	-426.70		
NO ₂ (g)	33.20	240.00	51.30	NaOH(aq)	-469.60	49.80	-419.20
N ₂ O(g)	82.05	219.70	104.20	Sulfur			
N ₂ O ₄ (g)	9.16	304.20	97.82	S(s, rhombic)	0.00	31.80	0.00
N ₂ O ₅ (g)	11.00	356.00	115.00	S(g)	278.80	167.80	238.30
N ₂ O ₅ (s)	-43.10	178.00	114.00	S ₂ Cl ₂ (g)	-18.00	331.00	-31.80
NOCl(g)	52.59	264.00	66.36	SF ₆ (g)	-1209.00	291.70	-1105.00
HNO ₃ (l)	-174.10	155.60	-80.79	H ₂ S(g)	-20.60	205.70	-33.60
HNO ₃ (g)	-135.10	266.20	-74.77	SO ₂ (g)	-296.80	248.10	-300.20
HNO ₃ (aq)	-206.60	146.00	-110.50	SO ₃ (g)	-395.60	256.60	-371.10
Oxygen				SOCl ₂ (l)	-206.00		
O(g)	249.20	161.00	231.80	SO ₂ Cl ₂ (l)	-389.00		
O ₂ (g)	0.00	205.00	0.00	H ₂ SO ₄ (l)	-814.00	156.90	-690.10
O ₃ (g)	143.00	238.80	163.00	H ₂ SO ₄ (aq)	-907.50	17.00	-742.00
OF ₂ (g)	23.00	246.60	41.00	Tin			
Phosphorus				Sn(s, white)	0.00	51.55	0.00
P(g)	3146.00	163.10	278.30	Sn(s, grey)	-2.09	44.10	0.13
P ₄ (s, white)	0.00	177.00	0.00	SnCl ₂ (s)	-350.00		
P ₄ (s, red)	-73.60	91.20	-48.50	SnCl ₄ (l)	-511.30	258.60	-440.20
PCl ₃ (g)	-306.40	311.70	-286.30	SnCl ₄ (g)	-471.50	366.00	-432.20
PCl ₅ (g)	-398.90	353.00	-324.60	SnO ₂ (s)	-580.70	52.30	-519.70
PH ₃ (g)	5.40	210.10	13.00	Titanium			
P ₄ O ₁₀ (s)	-2984.00	228.90	-3698.00	TiCl ₄ (l)	-804.20	252.30	-737.20
H ₃ PO ₄ (s)	-1281.00	110.50	-1119.00	TiCl ₄ (g)	-763.20	354.80	-726.80
Potassium				Tungsten			
K(s)	0.00	63.60	0.00	W(s)	0.00	32.60	0.00
KCl(s)	-436.50	82.60	-408.80	WO ₃ (s)	-842.90	75.90	-764.10
KClO ₃ (s)	391.20	143.10	-289.90	Zinc			
KI(s)	-327.90	106.40	-323.00	ZnO(s)	-348.30	43.64	-318.30
KOH(s)	-424.70	78.91	-378.90	ZnS(s)	-205.60	57.70	-201.30
KOH(aq)	-481.20	92.00	-439.60				