Thermochemical Data of Selected Elements and Compounds

(at 25°C and 100.000 kPa)

Substance	$\Delta H_f°$ (kJ/mol)	S° (J/K·mol)	$\Delta G_f°$ (kJ/mol)
Al (s)	0	28.3	0
Al_2O_3 (s)	-1675.7	50.9	-1582.3
Br_2 (l)	0	151.6	0
HBr (g)	-36.4	198.7	-53.5
Ca (s)	0	41.4	0
$CaCO_3$ (s) (calcite)	-1206.9	92.9	-1128.8
$CaCl_2$ (s)	-795.8	104.6	-748.1
C (s) (graphite)	0	5.7	0
C (s) (diamond)	1.9	2.38	2.90
CCl_4 (l)	-135.4	216.4	-65.2
CCl_4 (g)	-96.0	309.9	-60.6
$CHCl_3$ (l)	-134.5	201.7	-73.7
CH_4 (g)	-74.8	186.3	-50.7
C_2H_2 (g)	226.7	200.9	209.2
C_2H_4 (g)	52.3	219.6	68.2
C_2H_6 (g)	-84.7	229.6	-32.8
C_3H_8 (g)	-103.8	269.9	-23.5
C_6H_6 (l)	49.0	172.8	124.5
CH_3OH (l)	-238.7	126.8	-166.3
C_2H_5OH (l)	-277.7	160.7	-178.8
CH_3CO_2H (l)	-484.5	159.8	-389.9
CO (g)	-110.5	197.7	-137.2
CO_2 (g)	-393.5	213.7	-394.4
$COCl_2$ (g)	-218.8	283.5	-204.6
CS_2 (g)	+117.4	237.8	67.1
Cl_2 (g)	0	223.1	0
HCl g)	-92.3	186.9	-95.3
Cr (s)	0	23.8	0
$CrCl_3$ (s)	-556.5	123.0	-486.1
Cu (s)	0	33.2	0
CuO (s)	-157.3	42.6	-129.7
CuCl	-137.2	86.2	-119.9
$CuCl_2$ (s)	-220.1	108.1	-175.7
F_2 (g)	0	202.8	0
HF (g)	-271.1	173.8	-273.2
He (g)	0	126.0	0
H_2 (g)	0	130.7	0
H_2O (l)	-285.8	69.9	-237.1
H_2O (g)	-241.8	188.8	-228.6
H_2O_2 (l)	-187.8	109.6	-120.4
Fe (s)	0	27.8	0
FeO (s)	-272.0	57.6	245.1
Fe_2O_3 (s)	-824.2	87.4	-742.2
Fe_3O_4 (s)	-1118.4	146.4	-1015.4
$FeCl_2$ (s)	-341.8	118.0	-302.3
$FeCl_3$ (s)	-399.5	142.3	-344.0
FeS_2 (s)	-178.2	52.9	-166.9
Pb (s)	0	64.8	0
$PbCl_2$ (s)	-359.4	136.0	-314.1
Mg (s)	0	32.7	0
$MgCl_2$ (s)	-641.3	89.6	-591.8
MgO (s)	-601.7	26.9	-569.4
Hg (l)	0	76.0	0
HgS (s)	-58.2	82.4	-50.6
Ne (g)	0	146.2	0
N_2 (g)	0	191.6	0

Substance	$\Delta H_f°$ (kJ/mol)	S° (J/K·mol)	$\Delta G_f°$ (kJ/mol)
NH_3 (g)	-46.1	192.5	-16.5
N_2H_4 (l)	50.6	121.2	149.3
NH_4Cl (s)	-314.4	94.6	-202.9
NH_4NO_3 (s)	-365.6	151.1	-183.9
NO (g)	90.3	210.8	86.6
NO_2 (g)	33.2	240.1	51.3
N_2O (g)	82.1	219.9	104.2
N_2O_4 (g)	9.2	304.3	97.9
HNO_3 (l)	-174.1	155.6	-80.7
O (g)	249.2	161.1	231.7
O_2 (g)	0	205.1	0
O_3 (g)	142.7	238.9	163.2
P_4 (s) (white)	0	164.4	0
P_4 (s) (red)	-70.4	91.2	-48.4
PH_3 (g)	5.4	310.2	13.4
PCl_3 (g)	-287.0	311.8	-267.8
P_4O_6 (s)	-2144.3	345.6	-2247.4
P_4O_{10} (s)	-2984.0	228.9	-2697.7
H_3PO_4 (s)	-1279.0	110.5	-1119.1
K (s)	0	64.2	0
KCl (s)	-436.7	82.6	-409.1
$KClO_3$ (s)	-397.7	143.1	-296.3
KOH (s)	-428.8	78.9	-379.1
Ag (s)	0	42.6	0
AgCl (s)	-127.1	96.2	-109.8
$AgNO_3$ (s)	-124.4	140.9	-33.4
Na (s)	0	51.2	0
NaCl (s)	-411.2	72.1	-384.1
NaOH (s)	-425.6	64.5	-379.5
Na_2CO_3 (s)	-1130.7	135.0	-1044.0
S (s) (rhombic)	0	31.8	0
S (g)	278.8	167.8	238.3
SF_6 (g)	-1209.0	291.8	-1105.3
H_2S (g)	-20.6	205.8	-33.6
SO_2 (g)	-296.8	248.2	-300.2
SO_3 (g)	-395.7	256.8	-371.1
H_2SO_4 (l)	-814.0	156.9	-690.0
Sn (s) (white)	0	51.6	0
Sn (s) (gray)	-2.1	44.1	0.1
$SnCl_2$ (s)	-325.1	122.6	-302.1
$SnCl_4$ (l)	-155.3	258.6	-440.1