

Standard Enthalpies of Formation & Standard Entropies of Common Compounds

<i>Substance</i>	<i>State</i>	ΔH_f° ($\frac{\text{kJ}}{\text{mol}}$)	S° ($\frac{\text{J}}{\text{mol}\cdot\text{K}}$)	<i>Substance</i>	<i>State</i>	ΔH_f° ($\frac{\text{kJ}}{\text{mol}}$)	S° ($\frac{\text{J}}{\text{mol}\cdot\text{K}}$)
Ag	s	0	42.6	Cl ₂	g	0	223.0
Ag ⁺	aq	105.79	72.7	Cl ⁻	aq	-167.080	56.5
AgCl	s	-127.01	96.2	ClO ₄ ⁻	aq	-128.10	182.0
AgBr	s	-100.4	107.1	Cr	s	0	23.8
AgNO ₃	s	-124.4	140.9	Cr ₂ O ₃	g	-1139.7	81.2
Al	s	0	28.3	Cu	s	0	33.2
Al ³⁺	aq	-538.4	-321.7	Cu ⁺	aq	+71.7	40.6
AlCl ₃	s	-704	110.7	Cu ²⁺	aq	+64.8	-99.6
Al ₂ O ₃	s	-1675.7	50.9	CuO	s	-157.3	42.6
Ba	s	0	62.8	Cu ₂ O	s	-168.6	93.1
BaCl ₂	s	-858.6	123.7	CuS	s	-53.1	66.5
BaCO ₃	s	-1216.3	112.1	Cu ₂ S	s	-79.5	120.9
Ba(NO ₃) ₂	s	-992	214	CuSO ₄	s	-771.4	107.6
BaO	s	-553.5	70.4	F ⁻	aq	-335.35	-13.8
Ba(OH) ₂	s	-998.2	112	F ₂	g	0	202.7
BaSO ₄	s	-1473.2	132.2	Fe	s	0	27.3
Br ₂	l	0	152.2	Fe(OH) ₃	s	-823.0	106.7
C	s	0	5.7	Fe ₂ O ₃	s	-824.2	87.4
CCl ₄	l	-135.4	216.4	Fe ₃ O ₄	s	-1118.4	146.4
CHCl ₃	l	-134.5	201.7	H ₂	g	0	130.6
CH ₄	g	-74.8	186.2	H ⁺	aq	0	0.0*
C ₂ H ₂	g	+226.7	200.8	HBr	g	-36.29	198.6
C ₂ H ₄	g	+52.3	219.5	HCO ₃ ⁻	aq	-689.93	91.2
C ₂ H ₆	g	-84.7	229.5	HCl	g	-92.31	186.8
C ₃ H ₈	g	-103.8	269.9	HF	g	-273.30	173.7
CH ₃ OH	l	-238.7	126.8	HI	g	26.50	206.5
C ₂ H ₅ OH	l	-277.7	160.7	HNO ₃	l	-174.1	155.6
CO	g	-110.53	197.6	HPO ₄ ⁻²	aq	-1299.0	-33.5
CO ₂	g	-393.51	213.6	HSO ₄ ⁻	aq	-886.9	131.8
CO ₃ ⁻²	aq	-675.23	-56.9	H ₂ O	l	-285.830	69.9
Ca	s	0	41.4	H ₂ O	g	-241.826	188.7
Ca ²⁺	aq	-543.0	-53.1	H ₂ PO ₄ ⁻	aq	-1302.6	90.4
CaCl ₂	s	-795.8	104.6	H ₂ S	g	-20.6	205.7
CaCO ₃	s	-1206.9	92.9	Hg	l	0	76.0
CaO	s	-634.92	39.8	Hg ²⁺	aq	170.21	-32.2
Ca(OH) ₂	s	-986.1	83.4	HgO	cr,red	-90.79	70.3
CaSO ₄	s	-1434.1	106.7				
Cd	s	0	51.8				
Cd ²⁺	aq	-75.92	-73.2				
CdCl ₂	s	-391.5	115.3				
CdO	s	-258.35	54.8				

*The standard entropy of the H⁺(aq) ion is defined to be 0.

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I ⁻	aq	-56.78	111.3	Ni	s	0	29.9
I ₂	s	0	116.1	NiO	s	-239.7	38.0
K	s	0	64.2	OH ⁻	aq	-230.015	-10.8
K ⁺	aq	-252.14	102.5	O ₂	g	0	205.0
KBr	s	-393.8	95.9	P ₄	s	0	164.4
KCl	s	-436.7	82.6	PCl ₃	g	-287.0	311.7
KClO ₃	s	-397.7	143.1	PCl ₅	g	-374.9	364.5
KClO ₄	s	-432.8	151.0	PO ₄ ⁻³	aq	-1277.4	-222
KNO ₃	s	-494.6	133.0	Pb	s	0	64.8
Mg	s	0	32.7	Pb ⁺²	aq	0.92	10.5
Mg ⁺²	aq	-467.0	-138.1	PbBr ₂	s	-278.7	161.5
MgCl ₂	s	-641.3	89.6	PbCl ₂	s	-359.4	136.0
MgCO ₃	s	-1095.8	65.7	PbO	s	-219.0	66.5
MgO	s	-601.60	26.9	PbO ₂	s	-277.4	68.6
Mg(OH) ₂	s	-924.5	63.2	S	s	0	31.8
MgSO ₄	s	-1284.9	91.6	SO ₂	g	-296.81	248.1
Mn	s	0	32.0	SO ₃	g	-395.7	256.7
Mn ⁺²	aq	-220.8	-73.6	SO ₄ ⁻²	aq	-909.34	20.1
MnO	s	-385.2	59.7	S ₂ ⁻	aq	+33.1	-14.6
MnO ₂	s	-520.0	53.0	Si	s	0	18.8
N ₂	g	0	191.5	SiO ₂	s	-910.7	41.8
NH ₃	g	-45.94	192.3	Sn	s	0	51.6
NH ₄ ⁺	aq	-133.26	113.4	Sn ⁺²	aq	-8.9	-17.4
NO ₂ ⁻	aq	-104.6	123.0	SnO ₂	s	-577.63	52.3
NO ₃ ⁻	aq	-206.85	146.4	Zn	s	0	41.6
N ₂ H ₄	ℓ	+50.6	121.2	Zn ⁺²	aq	-153.39	-112.1
NH ₄ Cl	s	-314.4	94.6	ZnI ₂	s	-208.0	161.1
NH ₄ NO ₃	s	-365.6	151.1	ZnO	s	-350.46	43.6
NO	g	+90.2	210.7	ZnS	s	-206.0	57.7
NO ₂	g	+33.2	240.0				
N ₂ O ₄	g	+9.2	304.2				
Na	s	0	51.2				
Na ⁺	aq	-240.34	59.0				
NaCl	s	-411.2	72.1				
NaF	s	-573.6	51.5				
NaOH	s	425.6	64.5				