Heats of Formation, Entropies, and Free Energies

substance	ΔH_f^o (kJ/mol$_{\text{rxn}}$)	ΔS^o (J/K $\bullet$ mol$_{\text{rxn}}$)	ΔG_f^o (kJ/mol$_{\text{rxn}}$)
H*(g)*	218.2	114.6	203.2
C*(g)*	716.682	158.096	671.257
N*(g)*	470.4	153.3	455.5
O*(g)*	249.4	160.95	230.1
C*(s, graphite)*	0	5.69	0
C*(s, diamond)*	1.90	2.4	2.87
H^+*(aq)*	0	0	0
OH^-*(aq)*	–229.94	–10.5	–157.3
H_2*(g)*	0	131.0	0
N_2*(g)*	0	191.5	0
O_2*(g)*	0	205.0	0
CH_4*(g)*	–74.85	186.2	–50.8
CO_2*(g)*	–393.5	213.6	–394.4
H_2O*(g)*	–241.8	188.7	–228.6
H_2O*(l)*	–285.5	69.9	–237.2
HCl*(g)*	–92.307	186.908	–95.299
NH_3*(g)*	–46.3	193.0	–16.45
NH_4Cl*(s)*	–314.43	94.6	–203.87
NO_2*(g)*	33.85	240.6	51.8
N_2O_4*(g)*	9.66	304.3	98.29