

Featured software

Distillation simulator	www.vaxasoftware.com/soft_eduen/sden.html
FunGraph - Graphs of mathematical functions	www.vaxasoftware.com/soft_eduen/fungraph.html
Design of distillation columns by McCabe-Thiele method	www.vaxasoftware.com/soft_eduen/mcth.html
Worksheets Generators for Maths and Chemistry	www.vaxasoftware.com/pc/index.html
Acid-base equilibrium calculator	www.vaxasoftware.com/soft_eduen/abew.html
Statistics and Probability tools for Windows	www.vaxasoftware.com/soft_eduen/statool.html

Table 1. Standard molar Enthalpy change of formation at 25 °C

Inorganic compounds	ΔH_f^0 kJ/mol	Organic compounds	ΔH_f^0 kJ/mol
H ₂ O (g)	-241.818	Methane	CH ₄ (g) -74.85
H ₂ O (l)	-285.830	Ethane	C ₂ H ₆ (g) -83.85
HF (g)	-268.6	Ethene/Ethylene	C ₂ H ₄ (g) +52.51
HCl (g)	-92.3	Ethyne/Acetylene	C ₂ H ₂ (g) +227.48
NaCl (s)	-411.0	Propane	C ₃ H ₈ (g) -104.68
CaO (s)	-635.09	<i>n</i> -butane	C ₄ H ₁₀ (g) -125.65
CaCO ₃ (s. calcite)	-1 206.92	<i>n</i> -hexane	C ₆ H ₁₄ (l) -167.2
CO (g)	-110.53	Benzene	C ₆ H ₆ (l) +49.08
CO ₂ (g)	-393.51	Methanol	CH ₃ OH (l) -238.66
NO (g)	+90.25	Ethanol	C ₂ H ₅ OH (l) -277.69
NH ₃ (g)	-46.11	Formic/methanoic acid	HCOOH (l) -409.2
SO ₂ (g)	-296.83	Acetic/ethanoic acid	CH ₃ COOH (l) -484.5
SO ₃ (g)	-395.72	Chloroform	CHCl ₃ (l) -131.8

Table 2. Standard molar Gibbs free energy change of formation at 25 °C

Inorganic compounds	ΔG_f^0 kJ/mol	Organic compounds	ΔG_f^0 kJ/mol
H ₂ O (l)	-237.129	Methane	CH ₄ (g) -50.8
H ₂ O (g)	-228.572	Ethane	C ₂ H ₆ (g) -31.95
HF (g)	-270.7	Ethene/Ethylene	C ₂ H ₄ (g) +68.43
HCl (g)	-95.30	Ethyne/Acetylene	C ₂ H ₂ (g) +209.97
HI (g)	+1.72	Propane	C ₃ H ₈ (g) -24.40
CO (g)	-137.15	<i>n</i> -butane	C ₄ H ₁₀ (g) -16.56
CO ₂ (g)	-394.36	<i>n</i> -hexane	C ₆ H ₁₄ (l) +35.0
NH ₃ (g)	-16.48	Benzene	C ₆ H ₆ (l) +124.42
NO (g)	+86.552	Methanol	CH ₃ OH (l) -166.35

Table 3. Standard molar Entropy at 25 °C

	S° J/(mol·K)		S° J/(mol·K)
H (g)	114.6	HF (g)	173.8
H ₂ (g)	130.7	HCl (g)	186.9
O ₂ (g)	205.0	HBr (g)	198.7
O ₃ (g)	237.6	HI (g)	206.6
Cl ₂ (g)	222.9	H ₂ S (g)	205.8
Br ₂ (g)	245.2	NO (g)	210.8
Br ₂ (l)	152.3	NO ₂ (g)	240.1
I ₂ (g)	260.6	CaO (s)	39.7
I ₂ (s)	116.7	CaCO ₃ (s)	92.9
N ₂ (g)	191.5	CH ₄ (g)	186.3
H ₂ O (g)	188.8	C ₂ H ₂ (g)	200.9
H ₂ O (l)	69.9	C ₂ H ₄ (g)	219.4
H ₂ O ₂ (l)	109.6	C ₂ H ₆ (g)	229.2
CO (g)	197.9	C ₃ H ₈ (g)	270.3
CO ₂ (g)	213.6	C ₆ H ₆ (g)	269.2
NH ₃ (g)	192.5	C ₆ H ₆ (l)	173.4

Table 4. Average bond energies

Bond	Energy kJ/mol
H-H	436
C-H	415
N-H	390
O-H	460
C-C	347
C-N	285
C-O	352
N-N	159
C=C	610
C=N	615
C=O	730
N=N	418
O=O	494
C≡C	830
C≡N	887
N≡N	946

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