Selected Tables from the CRC Handbook of Chemistry and Physics

Platform: Windows
Requires Mathcad 3.1 or higher, 7 MB hard disk space
Available for ground shipment

This electronic version of the prestigious *CRC Handbook of Chemistry and Physics* includes over 80 tables from the 73rd Edition (1992) making it the most useful collection of online reference tables available. And because it's a Mathcad powered Electronic Book, every number and formula is "live" and interactive. This means you can double-click on any formula, data or plot and drag-and-drop it directly into your document. Then change variables and Mathcad will recalculate equations and redraw graphs instantly. Numbers in tables even paste with correct units. In the table "Ionization Potentials of Gas-Phase Molecules," for example, the numbers will paste with the units kilojoules per mole. Use the added flexibility of Mathcad's unit facility to freely convert from one unit system to another.

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Mathcad - [CRC CHEM. & PHYSICS: Enthalpy of Vaporization]

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3.6.2 Enthalpy of Vaporization of Organic Compounds

Molecular Formula	Name	T_b (°C)	$\Delta_{vap}H$ (T_b) (kJ/mol)		$\Delta_{vap}H$ (25°C) (kJ/mol)
$C_4H_8Br_2$	1,4-Dibromobutane				53.09
$C_4H_8Cl_2$	1,2-Dichlorobutane	124.1	33.90	E	39.58
$C_4H_8Cl_2$	1,4-Dichlorobutane				46.36
C_4H_8O	2-Butanone	79.59	31.30		34.79
C_4H_8O	Tetrahydrofuran	65	29.81		31.99
$C_4H_8O_2$	1,3-Dioxane	106.1	34.37	E	39.09
$C_4H_8O_2$	1,4-Dioxane	101.5	34.16	E	38.60
$C_4H_8O_2$	Ethyl acetate	77.11	31.94		35.60
$C_4H_8O_2$	Methyl propanoate	79.8	32.24		35.85

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The CRC Materials Science Access online reference tables, similar to this thermodynamic properties table for organic compounds, for technical data that can be incorporated into your document with drag-and-drop ease.

Sample topics include: Basic Constants, Units and Conversion Factors, Properties of the Elements, Thermodynamics, Biochemistry, Analytical Chemistry, Properties of Solids, Health and Safety Information, Mathematical Tables, and more.

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Since its first edition in 1913, the *CRC Handbook of Chemistry and Physics* has been one of the world's most widely used sources of data in the physical sciences. The Handbook has grown to almost 2500 pages and now covers a wide range of topics in chemistry, physics, and related disciplines. Its objective is to provide broad coverage of all types of data commonly encountered by physical scientists, with as much depth as can be accommodated in a one-volume format. References to other data sources are given in most tables. This electronic version contains selected tables from the 73rd Edition of the *CRC Handbook of Chemistry and Physics*, which was published in June 1992. The tables that are included emphasize the most basic data needed by physical scientists and engineers.

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Properties of Water in the Range 0 - 100°C

t(*C)	Density (g/cm3)	*Cp*(J/g-K)	Vap. Pres (kPa)	Visc. (uPa-s)	Ther. Cond. (mW/K-m)	Diel. Const.	Surf. Ten. (mN/m)
0	0.9984	4.217	0.6113	1793	561.0	87.90	75.64
10	0.99970	4.192	1.2281	1307	580.0	83.96	74.23
20	0.99821	4.181	2.3388	1002	598.4	80.20	72.75
30	0.99565	4.178	4.2455	797.7	615.4	76.70	71.20
40	0.99222	4.178	7.3814	653.2	630.5	73.17	69.60
50	0.98803	4.180	12.344	547.0	643.5	69.88	67.94
60	0.98320	4.184	19.932	466.5	654.3	66.73	66.24
70	0.97778	4.189	31.176	404.0	663.1	63.73	64.47
80	0.97182	4.196	47.373	354.4	670.0	60.86	62.67
90	0.96535	4.205	70.117	314.5	675.3	58.12	60.82
100	0.95840	4.215	101.325	281.8	679.1	55.51	58.91

This table summarizes the best available values of the density, specific heat capacity at constant pressure (Cp), vapor pressure, viscosity, thermal conductivity, dielectric constant, and surface tension for liquid water in the range 0 - 100°C. All values (except vapor pressure) refer to a pressure of 100 kPa (1 bar).

References

1. L. Harr, J. S. Gallagher, and G. S. Kell, *NBS/NRC Steam Tables*, Hemisphere Publishing Corp., 1984.

2. K. N. Marsh, Ed. *Recommended Reference Materials for the Realization of Physicochemical Properties*, Blackwell Scientific Publications, Oxford, 1987.

3. J. V. Sengers and J. T. R. Watson, Improved international formulations for the viscosity and thermal conductivity of water substance, *J. Phys. Chem. Ref. Data*, 15, 1291, 1986.

4. D. G. Archer and P. Wang, The dielectric constant of water and Debye-Huckel limiting law slopes, *J. Phys. Chem. Ref. Data*, 19, 1990.

5. N. B. Vargaftik, et al., International tables of the surface tension of water, *J. Phys. Chem. Ref. Data*, 12, 817, 1983.

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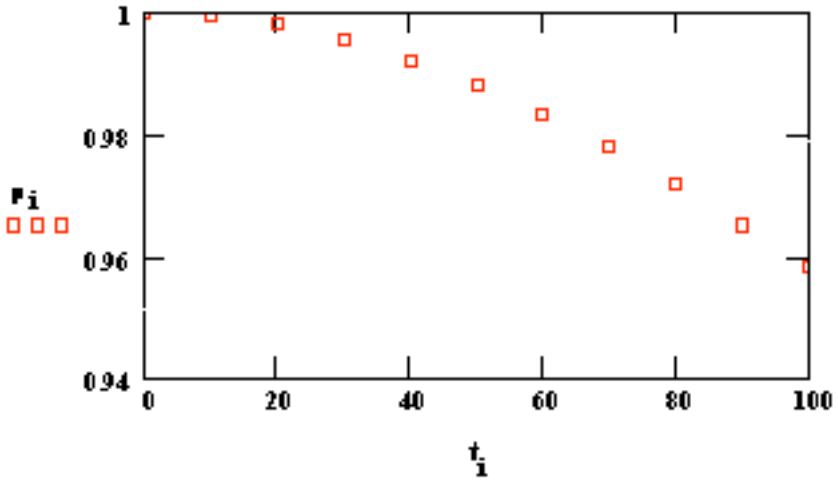
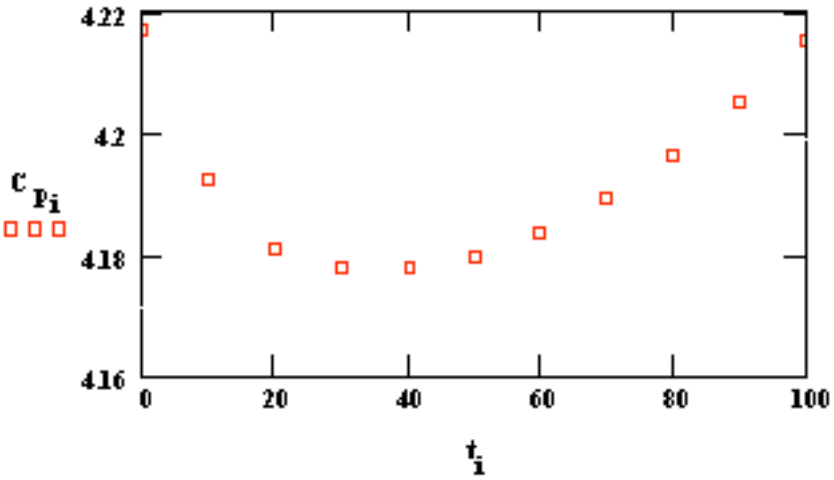
Mathcad Plots of Selected Data

Density (g/cm3) of Water versus Temperature (°C)



Heat Capacity (J/g·K) of Water versus Temperature (°C)



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Vapor Pressure (kPa) of Water versus Temperature (°C)