VAPOUR PRESSURE FOR LIQUID-VAPOUR EQUILIBRIUM

Antoine's equation fitting (T in kelvin and p in kPa)

$$\ln\left(\frac{p_v}{\mathrm{kPa}}\right) = A - \frac{B}{\frac{T}{\mathrm{K}} + C} \quad \Leftrightarrow \quad \frac{T_v}{\mathrm{K}} = \frac{B}{A - \ln\left(\frac{p}{\mathrm{kPa}}\right)} - C$$

Substance	***Formula***	*A*	*B*	*C*
Acetylene	C_2H_2	14.83	1837	-8.45
Acetone	C_3H_6O	14.71	2976	-34.52
Ammonia	NH_3	15.49	2363	-22.62
Argon	Ar	13.91	833	2.36
Benzene	C_6H_6	14.16	2949	-44.56
n-Butane	C_4H_{10}	13.98	2292	-27.86
Carbon dioxide	CO_2	15.38	1956	-2.11
Carbon monoxide	CO	13.87	770	1.64
Carbon tetrachloride	CCl_4	14.62	3394	-10.22
Chloroform	$CHCl_3$	14.50	2939	-37.00
Cyclohexane	C_6H_{12}	13.79	2795	-49.11
n-Decane	$C_{10}H_{22}$	13.99	3452	-78.90
n-Dodecane	$C_{12}H_{26}$	14.06	3744	-92.83
Ethane	C_2H_6	13.88	1582	-13.76
Ethanol	C_2H_6O	16.19	3424	-55.72
Ether	$C_4H_{10}O$	14.17	2564	-39.37
Ethyl acetate	$C_4H_8O_2$	14.32	2868	-55.00
Ethylene	C_2H_4	13.82	1427	-14.31
Ethylenglicol	$C_2H_6O_2$	16.18	4494	-82.10
Helium (^{4}He)	He	10.56	37	2.0
n-Heptane	C_7H_{16}	13.90	2933	-55.64
n-Hexadecane	$C_{16}H_{34}$	14.20	4240	-117
n-Hexane	C_6H_{14}	13.83	2714	-47.80
Hydrazine	N_2H_4	15.30	3500	-59.50
Hydrogen	H_2	12.78	232	8.08
Methane	CH_4	13.58	968	-3.72
Methanol	CH_4O	16.49	3593	-35.22
Neon	Ne	13.47	265	2.83
Nitrogen	N_2	13.45	658	-2.85
Nitrogen dioxide*	NO_2	21.98	6615	86.88
di-Nitrogen oxide	N_2O	14.96	1840	-6.80
di-Nitrogen tetroxide*	N_2O_4	21.98	6615	86.88
Nitrogen monoxide.	NO	14.24	1548	-23.91
n-Octane	C_8H_{18}	14.24	3304	-55.23
iso-Octane (2-2-4 trimethyl pentane)	C_8H_{18}	13.67	2896	-52.4

Oxygen	O_2	13.68	780	-4.18
n-Pentane	C_5H_{12}	13.98	2555	-36.25
Propane	C_3H_8	13.71	1873	-25.10
iso-Propanol	$C_3H_8O_2$	15.78	983	-75.70
Propylene	C_3H_6	13.88	1875	-22.91
R12	CCl_2F_2	13.79	1971	-28.30
R134a	CF_3CH_2F	14.41	2094	-33.06
R410A**	n.a.	14.97	2118	-17.27
Sulfur dioxide	SO_2	14.94	2385	-32.21
Sulfur hexafluoride	SF_6	12.53	1045	-75.64
Water	H_2O	16.54	3985	-39.00
Xenon	Xe	13.62	1340	-19.00

*There are mixture of dinitrogen tetroxide (N_2O_4) and nitrogen dioxide (NO_2).The NO_2/N_2O_4 equilibrium depends on temperature, NO_2 being favoured at high temperatures and N_2O_4 at low temperatures. When condensing, at 11.3 ºC at 100 kPa, most of the liquid is N_2O_4 which is colourless or pale brownish,

**R410A is a near-azeotropic mixture of R32 (difluoromethane, CH_2F_2) and R125 (pentafluoroethane, CHF_2CF_3), 50/50 by weight (70/30 molar), which can be approximated as a pure substance.

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