VISCOSITY OF GASES

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The following table gives the viscosity of some common gases as a function of temperature. Unless otherwise noted, the viscosity values refer to a pressure of 100 kPa (1 bar). The notation $P = 0$ indicates that the low-pressure limiting value is given. The difference between the viscosity at 100 kPa and the limiting value is generally less than 2%. Uncertainties for the viscosities of gases in this table are generally less than 3%; uncertainty information on specific fluids can be found in the references. Viscosity is given in units of μPa s; note that 1 μPa s = 10^{-5} poise. Substances are listed in the modified Hill order (see Introduction).

		Viscosity in μPa s						
		100 K	200 K	300 K	400 K	500 K	600 K	Ref.
	Air	7.1	13.3	18.5	23.1	27.1	30.8	1
Ar	Argon ($P = 0$)	8.1	15.9	22.7	28.6	33.9	38.8	2, 3*, 4*
BF_3	Boron trifluoride		12.3	17.1	21.7	26.1	30.2	5
ClH	Hydrogen chloride			14.6	19.7	24.3		5
F_6S	Sulfur hexafluoride ($P = 0$)			15.3	19.7	23.8	27.6	6
H_2	Normal hydrogen ($P = 0$)	4.1	6.8	8.9	10.9	12.8	14.5	3*, 7
D_2	Deuterium ($P = 0$)	5.9	9.6	12.6	15.4	17.9	20.3	8
H_2O	Water ($P = 0$)			9.8	13.4	17.3	21.4	9
D_2O	Deuterium oxide ($P = 0$)			10.2	13.7	17.8	22.0	10
H_2S	Hydrogen sulfide			12.5	16.9	21.2	25.4	11
H_3N	Ammonia			10.2	14.0	17.9	21.7	12
He	Helium ($P = 0$)	9.6	15.1	19.9	24.3	28.3	32.2	13
Kr	Krypton ($P = 0$)		17.4	25.5	32.9	39.6	45.8	14
NO	Nitric oxide		13.8	19.2	23.8	28.0	31.9	5
N_2	Nitrogen	7.0	12.9	17.9	22.2	26.1	29.6	1, 15*
N_2O	Nitrous oxide ($P = 0$)		10.0	15.0	19.8	24.1	27.9	16
Ne	Neon ($P = 0$)	14.4	24.1	31.9	38.6	44.8	50.6	17
O_2	Oxygen	7.7	14.7	20.7	25.8	30.5	34.7	1
O_2S	Sulfur dioxide		8.6	12.9	17.5	21.7		5
Xe	Xenon ($P = 0$)		15.7	23.2	30.5	37.2	43.5	3*, 14
CO	Carbon monoxide	6.7	12.9	17.8	22.1	25.8	29.1	5
CO_2	Carbon dioxide		10.1	15.0	19.7	24.0	28.0	18
$CHCl_3$	Chloroform			10.2	13.7	16.9	20.1	5
CH_4	Methane ($P = 0$)	3.9	7.7	11.1	14.2	17.0	19.5	3*, 19
CH_4O	Methanol ($P = 0$)		6.6	9.7	13.0	16.4	19.8	20
C_2H_2	Acetylene			10.4	13.5	16.5		5
C_2H_4	Ethylene		7.0	10.4	13.6	16.5	19.2	21
C_2H_6	Ethane		6.4	9.4	12.2	14.8	17.1	22
C_2H_6O	Ethanol				11.6	14.5	17.0	5
C_3H_8	Propane			8.2	10.8	13.3	15.6	23
C_4H_{10}	Butane			7.5	9.9	12.2	14.5	24
C_4H_{10}	Isobutane			7.5	9.9	12.2	14.4	25
$C_4H_{10}O$	Diethyl ether			7.6	10.1	12.4		5
C_5H_{12}	Pentane			6.7	9.2	11.4	13.4	5
C_6H_{14}	Hexane				8.6	10.8	12.8	5

* More accurate data covering a restricted temperature range.

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