

## Gas Density, Molecular Weight and Density

Gas	Formula	Molecular weight	Density - $\rho$ -	
			kg/m <sup>3</sup>	lb <sub>m</sub> /ft <sup>3</sup>
Acetylene (ethyne)	C <sub>2</sub> H <sub>2</sub>	26	1.092 <sup>1)</sup> 1.170 <sup>2)</sup>	0.0682 <sup>1)</sup> 0.0729 <sup>2)</sup>
Air		29	1.205 <sup>1)</sup> 1.293 <sup>2)</sup>	0.0752 <sup>1)</sup> 0.0806 <sup>2)</sup>
Ammonia	NH <sub>3</sub>	17.031	0.717 <sup>1)</sup> 0.769 <sup>2)</sup>	0.0448 <sup>1)</sup> 0.0480 <sup>2)</sup>
Argon	Ar	39.948	1.661 <sup>1)</sup>	0.1037 <sup>1)</sup>
Benzene	C <sub>6</sub> H <sub>6</sub>	78.11	3.486	0.20643
Blast furnace gas			1.250 <sup>2)</sup>	0.0780 <sup>2)</sup>
Butane	C <sub>4</sub> H <sub>10</sub>	58.1	2.489 <sup>1)</sup> 2.5 <sup>2)</sup>	0.1554 <sup>1)</sup> 0.156 <sup>2)</sup>
Butylene (Butene)	C <sub>4</sub> H <sub>8</sub>	56.11	2.504	0.148 <sup>2)</sup>
Carbon dioxide	CO <sub>2</sub>	44.01	1.842 <sup>1)</sup> 1.977 <sup>2)</sup>	0.1150 <sup>1)</sup> 0.1234 <sup>2)</sup>
Carbon disulphide		76.13		
Carbon monoxide	CO	28.01	1.165 <sup>1)</sup> 1.250 <sup>2)</sup>	0.0727 <sup>1)</sup> 0.0780 <sup>2)</sup>
Carbureted Water Gas				0.048
Chlorine	Cl <sub>2</sub>	70.906	2.994 <sup>1)</sup>	0.1869 <sup>1)</sup>
Coke Oven Gas				0.034 <sup>2)</sup>

Gas	Formula	Molecular weight	Density - $\rho$ -	
			kg/m <sup>3</sup>	lb <sub>m</sub> /ft <sup>3</sup>
Combustion products			1.11 <sup>2)</sup>	0.069 <sup>2)</sup>
Cyclohexane		84.16		
Digester Gas (Sewage or Biogas)				0.062
Ethane	C <sub>2</sub> H <sub>6</sub>	30.07	1.264 <sup>1)</sup>	0.0789 <sup>1)</sup>
Ethyl Alcohol		46.07		
Ethyl Chloride		64.52		
Ethylene	C <sub>2</sub> H <sub>4</sub>	28.03	1.260 <sup>2)</sup>	0.0786 <sup>2)</sup>
Helium	He	4.02	0.1664 <sup>1)</sup>	0.01039 <sup>1)</sup>
N-Heptane		100.20		
Hexane		86.17		
Hydrogen	H <sub>2</sub>	2.016	0.0899 <sup>2)</sup>	0.0056 <sup>2)</sup>
Hydrochloric Acid		36.47		
Hydrogen Chloride	HCl	36.5	1.528 <sup>1)</sup>	0.0954 <sup>1)</sup>
Hydrogen Sulfide	H <sub>2</sub> S	34.076	1.434 <sup>1)</sup>	0.0895 <sup>1)</sup>
Methane	CH <sub>4</sub>	16.043	0.668 <sup>1)</sup> 0.717 <sup>2)</sup>	0.0417 <sup>1)</sup> 0.0447 <sup>2)</sup>

1) **NTP - Normal Temperature and Pressure** - is defined as air at 20°C (293.15 K, 68°F) and 1 atm ( 101.325 kN/m<sup>2</sup>, 101.325 kPa, 14.7 psia, 0 psig, 30 in Hg, 760 torr)

2) **STP - Standard Temperature and Pressure** - is defined as air at 0°C (273.15 K, 32°F) and 1 atm (101.325 kN/m<sup>2</sup>, 101.325 kPa, 14.7 psia, 0 psig, 30 in Hg, 760 torr)

## Gas Density, Molecular Weight and Density

Gas	Formula	Molecular weight	Density - $\rho$ -	
			kg/m <sup>3</sup>	lb <sub>m</sub> /ft <sup>3</sup>
Methyl Alcohol		32.04		
Methyl Butane		72.15		
Methyl Chloride		50.49		
Natural gas		19.5	0.7 - 0.92)	0.044 - 0.0562)
Neon	Ne	20.179		0.052
Nitric oxide	NO	30.0	1.249 <sup>1)</sup>	0.0780 <sup>1)</sup>
Nitrogen	N <sub>2</sub>	28.02	1.165 <sup>1)</sup> 1.250 <sup>2)</sup>	0.0727 <sup>1)</sup> 0.0780 <sup>2)</sup>
Nitrogen Dioxide	NO <sub>2</sub>	46.006		
N-Octane		114.22		
Nitrous Oxide	N <sub>2</sub> O	44.013		0.114
Nitrous Trioxide	NO <sub>3</sub>	62.005		
Oxygen	O <sub>2</sub>	32	1.331 <sup>1)</sup> 1.429 <sup>2)</sup>	0.0831 <sup>1)</sup> 0.0892 <sup>2)</sup>
Ozone	O <sub>3</sub>	48.0		0.125
N-Pentane		72.15		

Gas	Formula	Molecular weight	Density - $\rho$ -	
			kg/m <sup>3</sup>	lb <sub>m</sub> /ft <sup>3</sup>
Iso-Pentane		72.15		
Propane	C <sub>3</sub> H <sub>8</sub>	44.09	1.882 <sup>1)</sup>	0.1175 <sup>1)</sup>
Propene (propylene)	C <sub>3</sub> H <sub>6</sub>	42.1	1.748 <sup>1)</sup>	0.1091 <sup>1)</sup>
R-11		137.37		
R-12		120.92		
R-22		86.48		
R-114		170.93		
R-123		152.93		
R-134a		102.03		
Sasol				0.032
Sulfur	S	32.06		0.135
Sulfur Dioxide	SO <sub>2</sub>	64.06	2.279 <sup>1)</sup> 2.926 <sup>2)</sup>	0.1703 <sup>1)</sup> 0.1828 <sup>2)</sup>
Sulfur Trioxide	SO <sub>3</sub>	80.062		
Sulfuric Oxide	SO	48.063		
Toluene	C <sub>7</sub> H <sub>8</sub>	92.141	4.111	0.2435
Water Vapor	H <sub>2</sub> O	18.016	0.804	0.048
Water gas (bituminous)				0.054

1) **NTP - Normal Temperature and Pressure** - is defined as air at 20°C (293.15 K, 68°F) and 1 atm ( 101.325 kN/m<sup>2</sup>, 101.325 kPa, 14.7 psia, 0 psig, 30 in Hg, 760 torr)

2) **STP - Standard Temperature and Pressure** - is defined as air at 0°C (273.15 K, 32°F) and 1 atm (101.325 kN/m<sup>2</sup>, 101.325 kPa, 14.7 psia, 0 psig, 30 in Hg, 760 torr)