

Helium

Physical Properties

Chemical formula	He	Triple point pressure	
Molecular weight	4.0026	Absolute atmospheres	0.1238
Specific gravity (Air = 1)		Absolute psi	1.819
70°F (21.1°C) 1 atm	0.13796	Triple point temperature	
Density lb. per cu. ft.		Specific heat, BTU/lb, °F	1.2404 @ 70°F
70°F 1 atm	0.01034	At constant pressure (1 atm) 70°F (21.1°C)	
Specific Volume, cu ft		At constant volume (1 atm) 70°F (21.1°C)	
per lb 70°F 1 atm	96.71	Ratio of specific heats at	1.6671 @ 70°F
Density of saturated vapor (1 atm)		70°F (21.1°C)	
lb/cu ft, 1 atm	1.0434	Coefficient of viscosity, micropoises	198.5
Normal boiling point	-452.1° F	70°F (21.1°C)	178.7
Heat vaporization, BTU/lb	9.0	Thermal conductivity,	0.08266 @ 40°F
Critical pressure		32° F (0°C)	
Absolute atmospheres	2.26	BTU/ (sq ft) (hr) (°F)/ft.	
Absolute psi	33.2	Ionization potential, volts	24.5
Critical point temperature	-450.1° F	Excitation potential, first resonance potential, volts	20.91

Helium Specifications

MTG Grade Designation	Grade 4	Grade 4.5 Industrial
CGA Designation	J	L
Assay % v/v Min	99.0	99.995
Maximum Guaranteed Impurities	-76	50 ppm
Water, ppm or Dew Point	None condensed	15 ppm
Hydrocarbons (condensed)	None condensed	See "hydrocarbons as methane," below
Hydrocarbons (as methane)		
Oxygen		5 ppm
Nitrogen & Argon		
Neon		
Hydrogen		
CO + CO ₂		
Typical Applications	Standard Welding Medical	Used for CGA, A B C or D

Conversion Data

	WEIGHT		GAS		LIQUID	
	POUNDS Lb	KILOGRAMS Kg	CUBIC FEET SCF	CUBIC METERS Nm ³	GALLONS Gal	LITERS L
1 Pound	1.0	0.4536	96.71	2.542	0.9593	3.631
1 Kilogram	2.205	1.0	213.2	5.603	2.115	8.006
1 SCF Gas	0.01034	0.004690	1.0	0.02628	0.009919	0.03754
1 Nm ³ Gas	0.3935	0.17847	38.04	1.0	0.3775	1.4289
1 Gal Liquid	1.0423	0.4728	100.80	2.649	1.0	3.785
1 L Liquid	0.2754	0.1249	26.63	0.6998	0.2642	1.0

SCF (standard cubic feet) gas measured at 1 atmosphere and 70°F.
Liquid measured at 1 atmosphere and boiling temperature.

All values rounded to nearest 4/5 significant numbers.

Nm³ (normal cubic meter) gas measured at 1 atmosphere and 0°C.