

# Pure Gas: Krypton

## DESCRIPTION

Krypton is a rare atmospheric gas which is odorless, colorless, tasteless, nontoxic, monatomic and chemically inert. The concentration of Krypton in the atmosphere by volume percent is  $1.1 \times 10^{-4}$ . Krypton is principally shipped and used in gaseous form for excimer lasers, light bulbs, window insulation and R & D laboratory research. Spectra Gases Material Safety Data Sheets (MSDS) are available for Krypton gas and should be used as guidelines in regard to first aid, methods of storage, handling and general use of Krypton.

PHYSICAL CONSTANTS		
Chemical name		Kr
Molecular weight		83.80
Density of the gas at 70°F (21,1°C), 1 atm		0.2172 lb/ft <sup>3</sup> , 3.479 kg/m <sup>3</sup>
Specific gravity of the gas at 70°F (21,1°C), 1 atm		2.899
Specific volume of the gas at 70°F (21,1°C), 1 atm		4.604 ft <sup>3</sup> /lb, 0.287 m <sup>3</sup> /kg
Boiling point at 1 atm		-244.0°F, -153.4°C
Melting point at 1 atm		-251°F, -157°C
Critical temperature at 1 atm		-82.8°F, -63.8°C
Critical pressure		798.0 psia, 55.02 bar
Critical density		56.7 lb/ft <sup>3</sup> , 908 kg/m <sup>3</sup>
Triple point		-251.3°F, -157.4°C
Latent heat of vaporization at normal boiling point		46.2 Btu/lb, 107.5 kJ/kg
Latent heat of fusion at triple point		8.41 Btu/lb, 19.57 kJ/kg
Specific heat of the gas at 70°F (21,1°C), 1 atm	Cp	0.060 Btu/(lb) (°F) 0.251 kJ/(kg) (°C)
	Cv	0.035 Btu/(lb) (°F) 0.146 kJ/(kg) (°C)

PURITY SPECIFICATIONS (MAXIMUM IMPURITY LEVELS)*		
Contaminant	Research Grade 99.999%	UHP Grade 99.995%
Argon (Ar)	2.0 ppm	2.0 ppm
Carbon Dioxide (CO <sub>2</sub> )	0.5 ppm	1.0 ppm
Carbon Tetrafluoride (CF <sub>4</sub> )	0.5 ppm	1.0 ppm
Hydrogen (H <sub>2</sub> )	0.5 ppm	2.0 ppm
Nitrogen (N <sub>2</sub> )	2.0 ppm	5.0 ppm
Oxygen (O <sub>2</sub> )	0.5 ppm	1.0 ppm
Water (H <sub>2</sub> O)	0.5 ppm	1.0 ppm
Xenon	5.0 ppm	25.0 ppm
Total Hydrocarbon (THC) as Methane	0.5 ppm	N/A
Carbon Monoxide	1.0 ppm	N/A

\* Higher purities are available upon request.

(Continued)



CYLINDER INFORMATION					
Purity	Cylinder Size*	Valve Outlet*	Volume Liters	Gross Weight Lbs/Kg	Pressure Psig/Bar
Research Grade	1	580	10000	213 / 97	2300 / 160
	2	580	5000	155 / 70	1350 / 94
	3	580	2000	63 / 29	1500 / 104
	4	580	1000	31 / 14	1450 / 101
	5	580	500	16 / 7	2000 / 139
	LB	580/170	50	6 / 3	1400 / 98
UHP Grade	1	580	10000	213 / 97	2300 / 160
	2	580	5000	155 / 70	1350 / 94
	3	580	2000	63 / 29	1500 / 104
	4	580	1000	31 / 14	1450 / 101
	5	580	500	16 / 7	2000 / 139
	LB	580/170	50	6 / 3	1400 / 98
Non-Refillable Cylinders	D1	580	400	16 / 7	1300 / 91
	D2	580	200	11 / 5	1050 / 73
	D2	580	100	10 / 5	575 / 41
	D3	580	50	7 / 3	675 / 48
	D3	580	25	6 / 3	350 / 25
	D7	580	20	3 / 1	240 / 18
	D7	580	12	3 / 1	140 / 11

\* Additional cylinder sized and/or valve outlets are available upon request.

SHIPPING DATA	
Synonyms	Kr
CAS Register Number	7439-90-9
DOT Classification	Nonflammable gas
DOT Label	Nonflammable gas
Transport Canada Classification	2.2
Substance Identification (SI)	1056
UN Number	UN 1056
Hazards	High Pressure and suffocation
Toxicity (TLV)	Asphyxiant
Flammability Range (in air)	Nonflammable gas
Odor	None