

Pure Gas: Nitrogen

DESCRIPTION

Nitrogen makes up the major portion of the earth's atmosphere with 78.08% by volume. Nitrogen is a colorless, odorless, tasteless, nontoxic and almost totally inert gas. Nitrogen is principally shipped and used in either gaseous or liquid form for heat treating, blanketing, food processing, semiconductors, light bulbs, lasers and laboratory R & D. Spectra Gases Material Safety Data Sheets (MSDS) are available for Nitrogen gas and should be used as guidelines in regard to first aid, methods of storage, handling and general use of Nitrogen.

PURITY SPECIFICATIONS (MAXIMUM IMPURITY LEVELS)*		
Contaminant	Research Grade 99.9995%	UHP Grade 99.999%
Argon (Ar)	5.0 ppm	10.0 ppm
Carbon Dioxide (CO ₂)	1.0 ppm	2.0 ppm
Carbon Monoxide (CO)	1.0 ppm	2.0 ppm
Hydrogen (H ₂)	0.5 ppm	1.0 ppm
Methane	0.5 ppm	1.0 ppm
Oxygen (O ₂)	0.5 ppm	1.0 ppm
Water (H ₂ O)	0.5 ppm	1.0 ppm

* Higher purities are available upon request.

CYLINDER INFORMATION					
Purity	Cylinder Size*	Valve Outlet*	Volume Cu.Ft./Liters	Gross Weight Lbs/Kg	Pressure Psig/Bar
Research Grade	1	580	304.0 / 8600	158 / 72	2640 / 183
	2	580	253.0 / 7150	133 / 60	2490 / 173
	3	580	085.0 / 2400	052 / 24	2200 / 153
	4	580	043.0 / 1200	025 / 11	2200 / 153
	LB	170	001.8 / 0050	006 / 03	1800 / 125
UHP Grade	1	580	304.0 / 8600	158 / 72	2640 / 183
	2	580	253.0 / 7150	133 / 60	2490 / 173
	3	580	085.0 / 2400	052 / 24	2200 / 153
	LB	170	01.8 / 0050	06 / 03	1800 / 125
Non-Refillable Cylinders	D1	580	— / 0400	18 / 8	1550 / 108
	D2	580	— / 0200	12 / 5	1200 / 084
	D2	580	— / 0100	10 / 4	0600 / 042
	D3	580	— / 0050	07 / 3	0700 / 049
	D3	580	— / 0025	07 / 3	0350 / 025
	D7	580	— / 0020	03 / 1	0240 / 018
	D7	580	— / 12	03 / 1	0140 / 011

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

(Continued)



PHYSICAL CONSTANTS

Chemical name	N ₂	
Molecular weight	28.01	
Density of the gas at 70°F (21,1°C), 1 atm	0.072 lb/ft ³ , 1.153 kg/m ³	
Specific gravity of the gas at 70°F (21,1°C), 1 atm	0.967	
Specific volume of the gas at 70°F (21,1°C), 1 atm	13.89 ft ³ /lb, 0.867 m ³ /kg	
Density of liquid at boiling point and 1 atm	50.47 lb/ft ³ , 808.5 kg/m ³	
Boiling point at 1 atm	-320.4°F, -195.8°C	
Melting point at 1 atm	-345.8°F, -209.9°C	
Critical temperature at 1 atm	-232.4°F, -146.9°C	
Critical pressure	493 psia, 33.99 bar	
Critical density	19.60 lb/ft ³ , 314.9 kg/m ³	
Triple point	-346.0°F, -210°C	
Latent heat of vaporization at normal boiling point	85.6 Btu/lb, 199.1 kJ/kg	
Latent heat of fusion at triple point	11.1 Btu/lb, 25.1 kJ/kg	
Specific heat of the gas at 70°F (21,1°C), 1 atm	Cp	0.249 Btu/(lb) (°F) 1.04 kJ/(kg) (°C)
	Cv	0.177 Btu/(lb) (°F) 0.741 kJ/(kg) (°C)
Ratio of specific heats (C p/C v)	1.41	

SHIPPING DATA

Synonyms	N ₂
CAS Register Number	7727-37-9
DOT Classification	Nonflammable gas
DOT Label	Nonflammable gas
Transport Canada Classification	2.2
Substance Identification (SI)	1066
UN Number	UN 1066
Hazards	High Pressure and suffocation
Toxicity (TLV)	Asphyxiant
Flammability Range (in air)	Nonflammable gas
Odor	None