



## Nitrogen (N<sub>2</sub>, R-728)

CAS: 7727-37-9 EC: 231-783-9 UN: 1066 (Compressed); 1977 (Refrigerated liquid)

Nitrogen Baseline 5.0			
Purity (%)	99,999		
Impurities (ppm)	O <sub>2</sub> 2	C <sub>n</sub> H <sub>m</sub> 0,5	H <sub>2</sub> O 3
Typical Filling Pressure	20°C: 200 bar(a)		

### Characteristics

- Colourless and odourless gas.

### Health Risks

- Asphyxiant at high concentrations.

ADR Class 2, 1 A



DOT Class 2,2



Product Description	Size (kg)	Grade	Material Number	Valve Connection	Recommended Regulator
Nitrogen Baseline 5.0	11,0	Instrument Grade	511203-SE-C	3/4" BSP RH Int	W019130 or W019230
Nitrogen Baseline MCP	165,0	Instrument Grade	511203-ME-C	3/4" BSP RH Int	W019130 or W019230
Nitrogen Baseline 5.0	2,2	Instrument Grade	511203-IE-C	3/4" BSP RH Int	W019130 or W019230
Nitrogen Baseline PCC	120	Ultra-high Purity	511204-PA-C	3/4" BSP RH Int	W019130 or W019230
Nitrogen PCC	120	Uncertified	511201-PA-N	3/4" BSP RH Int	W019130 or W019230
Nitrogen Pharma Grade 5.6	11,0	Pharmaceutical Grade	511206-SE-A	3/4" BSP RH Int	W019130 or W019230
Nitrogen BP Grade 5.0	11,0	Pharmaceutical Grade	511206-SE-C	3/4" BSP RH Int	W019130 or W019230

### Physical Data

Molecular Weight	28,014
Boiling Point at 1,013 bar [°C]	-195,8
Density at 1,013 bar, 20°C [kg/m <sup>3</sup> ]	1,165
Vapour Pressure at 0°C [bar]	-
Vapour Pressure at 20°C [bar]	-
Flammability Range in Air [% volume]	Non-combustible
Specific Volume at 1,013 bar, 20°C [m <sup>3</sup> /kg]	0,858

### Material Compatibility

Aluminium	● N	Brass	●	Butyl	●	rubber	●	Carbon	●	steel	●	Copper	●	Monel	●	Neoprene	●	Nylon	●	Polythene	●	PVC	●	Stainless	●	steel	●	Teflon	●	Viton	●
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Legend: ● Good | Fair ■ Avoid

#### Source

nitrogen is required, the nitrogen produced may need to

- Nitrogen is produced in large quantities at air separation plants which liquefy and subsequently distil air into nitrogen, oxygen and usually argon. If very high purity

go through a secondary purification process. The lower range of nitrogen purities can also be produced with membrane techniques, and medium to high purities with pressure swing adsorption (PSA) techniques.

#### Applications

- Nitrogen is used in large quantities in the chemical industry for blanketing, purging and pressure transfer of flammable chemicals.
- High purity nitrogen is used in large quantities by the semiconductor industry as a purge or carrier gas as well as for blanketing equipment such as furnaces when not in production.
- Nitrogen is used as a purge gas.
- Nitrogen is commonly used as carrier gas in gas chromatography.
- Nitrogen is used as zero gas for analytical instruments.
- Nitrogen is commonly used as a balance gas in mixtures.
- Nitrogen is used in the electronic industry for inerting of epitaxial reactors.
- Nitrogen is used in mixtures with carbon dioxide for modified atmosphere packaging (MAP) of food stuffs. (See FoodFresh™ )
- Nitrogen is used extensively, either pure or, more commonly, in a mixture with a reducing gas such as hydrogen or natural gas, to provide an oxygen-free atmosphere during heat treatment of various metals.
- Nitrogen is used in the Haber-Bosch process for production of ammonia.
- Nitrogen is used as a fire extinguishing gas in mines.
- Nitrogen is used to fill tyres to lower wear and limit the risks of blow-outs.
- Liquid nitrogen is used in cold traps to improve the efficiency of vacuum pumps by condensing or solidifying residual gases in the vacuum.
- Liquid nitrogen may be used for shrink fitting of close tolerance components.
- Liquid nitrogen is used to freeze a wide variety of delicate food, such as hamburgers, strawberries, shrimps, etc.
- Liquid nitrogen may also be used for cryogenic grinding of plastics, rubbers and some other chemicals products.
- Liquid nitrogen is used in the nuclear industry, for scientific research.
- Liquid nitrogen is used to store biological materials like tissue, cells, etc.
- Liquid nitrogen is also used for cryosurgery.
- Liquid nitrogen is used in the area of superconductivity.

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