



# Liquid Nitrogen, Industrial Quality



## Application

The industrial quality of liquid nitrogen is used, where there are no special demands on the purity of the gas. Often the nitrogen is used for inert gas ( i.e. displacement of the oxygen of the air) in connection with storing of chemicals. This is done to avoid fire- and explosion-danger or disintegration of the raw material during oxidation.

Other fields of application of liquid nitrogen is pressure setting, pressure testing, laser cutting or freezing of products, where no special demands are made. Liquid nitrogen is produced from air via distillation in an air separation system.

## Physical properties

Liquid Nitrogen is a colourless and odourless liquid, which is lighter than water. As a gas it is colourless-tasteless as well as odourless. Nitrogen is neither inflammable in itself, nor will the substance nourish fire. Atmospheric air contains 79,09 vol. % nitrogen, and nitrogen gas is a little lighter than air. Nitrogen is easier soluble in water. Nitrogen is inert, except at high temperatures, where it reacts with few active metals, e.g. lithium, magnesium and titanium, and forms nitrides. It creates nitric oxide and nitrogen dioxide in reaction with oxygen, ammonia with hydrogen and nitrogen sulphide with sulphur. Liquid nitrogen is produced from air via distillation in an air separation system.

## Specification

Material No. 101980. Product name: Liquid Nitrogen, Industrial Quality

Purity	Impurities
Nitrogen (N <sub>2</sub> ) ≥ 99,9 vol. %	Oxygen (H <sub>2</sub> O) ≤ 20 ppm
	Water (H <sub>2</sub> O) ≤ 10 ppm

*The specifications are exclusively valid for deliveries in pressure tanks.*

## Physical data

Gas type	Boiling point	Latent heat of vaporization	Specific heat capacity (15 °C)
Nitrogen, N <sub>2</sub> , LIN	-196 °C	198 kJ/kg	1,04 kJ/kg K

### Conversion factors

1 nm<sup>3</sup> = 1,419 litre = 1,148 kg  
 1 litre = 0,705 nm<sup>3</sup> = 0,808 kg  
 1 kg = 0,872 nm<sup>3</sup> = 1,237 litre  
 1 nm<sup>3</sup> = 1 m<sup>3</sup> at 15 °C and 0,98 KPa.

### Critical values

Critical temperature -147,1 °C  
 Critical pressure 33,9 bar  
 Critical density 0,311 kg/l  
*The litre-designation is used for gas in its liquid phase.*

Linde Gas  
[www.linde-gas.no](http://www.linde-gas.no)