



LIQUID NITROGEN

Production & Distribution

Liquid Nitrogen is commercially available and is created in cryogenic air separation plants by cleaning normal atmospheric air (nitrogen, N² comprises 78% of the earth's atmosphere), compressing and cooling by expansion to create liquefied air, which is subsequently separated by fractional distillation at cryogenic temperatures.

Liquid nitrogen is stored at MCL in a special vacuum-insulated 10,000 litre bulk tank and transported in 500 or 1000 litre road tanks of the same design. The temperature in these road tanks range from -196°C to -155°C and corresponding pressures ranging from atmospheric to around 3 bar.

The tanks are not refrigerated to maintain the internal temperature, hence ingress may cause the liquid to boil and increase the pressure in the tank. The liquid nitrogen is generally transported cold at a low pressure and automated valve systems vent any excess pressure.

Cryogenic users have low pressure tanks (3 bar or less) and companies using nitrogen as a gas tend to have higher pressure tanks (up to 20 bar), depending on their preferred applications.

Properties

Liquid nitrogen:

- Due to its very low temperature, it has a very high heat transfer rate
- Can exist as a liquid at atmospheric pressure and can be stored in a Thermos® flask or similar at -196°C
- A lot of heat is absorbed when it vaporises – as much as 420kj per kg in an efficient system

Gaseous nitrogen:

- Tasteless, odourless & colourless
- Chemically inert & Non-flammable except at very high temperatures

MIDLAND CRYOGENICS LIMITED

Brock Building | Aspley Close | Four Ashes Industrial Estate | Wolverhampton | WV10 7DE

Telephone: +44 (0)1902 791999 | Fax: +44 (0)1902 791909

Email: enquiry@midlandcryogenics.com | www.midlandcryogenics.com



Cert No. 2441
ISO 9001