### TECHNICAL SPECIFICATION

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- Nitrogen > 99.9%

#### PHYSICAL DATA
- Chemical Symbol: N₂
- Boiling Point: -195.8°C
- Relative Density (Air = 1): 0.967
- Molecular Weight: 28.013
- Critical Temperature: -147.1°C
- Flashpoint: Non-flammable

#### PI 04/16/E LIQUID NITROGEN

#### LIQUID NITROGEN

- Liquid Nitrogen is widely used as a cold source and hence plays the role of a cold accumulator.
- It is employed in various fields.
- ▪ Storage of perishable goods freezing, sub-freezing and freeze drying, maintenance of food products and pre-cooked meals at low temperature, transportation in inert atmosphere by refrigerator trucks.
- ▪ Storage of biological products freezing, sub-freezing and freeze drying, low temperature storage of blood, living tissues and semen employed for artificial insemination.
- ▪ Cryosurgery of the brain and eyes.

#### SUPPLY & STORAGE
- As Cryogenic Liquid in Cryogenic Storage Tanks, Bulk Tankers, Liquid Containers, Dewars etc

#### HANDLING & SAFETY

#### HAZARDS
- Should nitrogen replace oxygen in air there is a risk of asphyxia: air containing less than 16% oxygen is dangerous.
- Extremely low temperature (-196°C)

#### MATERIALS COMPATIBILITY
- Nitrogen is non-corrosive and so any common metal is acceptable, provided equipment is designed to withstand process pressure and temperature.
- Equipment to handle liquid nitrogen must be constructed of suitable material for the low temperature encountered.

#### PRECAUTIONS IN USE
- Use only in well-ventilated area to prevent accumulation of high concentration of nitrogen.
- Ensure that oxygen content of air is maintained above 18%.
- It is recommended that the user of liquid nitrogen is familiar with relevant standards “The storage and handling of nonflammable cryogenic and refrigerated liquids”.

#### PERSONAL PROTECTION
- Full face mask, well-fitting cryogenic gloves and full overalls without cuffs should be worn when handling liquid nitrogen supply systems.

#### FIRST AID
- If victim is conscious:
  - Move to uncontaminated area to breathe fresh air.
  - Keep warm and quiet.
  - Call doctor.

- FIRST AID contd
  - If victim is unconscious:
    - Move to uncontaminated area and give assisted respiration.
    - When breathing is restored, treatment as above.
    - Continued treatment should be symptomatic and supportive.

#### COLD BURNS/FROSTBITE
- Flush with luke warm water for at least 10 minutes then treat as thermal burns.
- Seek hospital attention for all but the most superficial cases. Do not apply direct heat or give alcohol or cigarettes.
- Protect frozen parts from infection.

#### ADDITIONAL INFORMATION
- The information, recommendations and data contained in this publication are intended to give basic guidance to users for their safe handling and use.
- For further information please refer Material Safety Data Sheets (MSDS)
- It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards.