

## A.I. (Liquid Nitrogen)

### ✓ Description

Liquid Nitrogen is a cryogenic fluid widely used in artificial insemination (A.I.) procedures for the preservation and storage of semen at ultra-low temperatures. It is crucial for maintaining semen viability during transportation and long-term storage.

### ✓ Specifications

- **Purity:** 99.9%+ pure nitrogen
- **Temperature:** -196°C (-321°F)
- **Form:** Liquid at atmospheric pressure, vaporizes rapidly at room temperature
- **Storage Containers:** Dewar flasks, cryogenic tanks
- **Volume Sizes:** Available in various container sizes (5L, 10L, 20L, 50L, 100L)

### ✓ Material

- Nitrogen gas compressed and cooled to liquid state

### ✓ Product Category

- Veterinary and medical cryogenic storage material

### ✓ Product Form

- Liquid in specialized cryogenic containers

### ✓ Usage

- Preservation and transport of semen for artificial insemination in veterinary and human medicine
- Cryopreservation of biological samples

### ✓ Advantages

- ✓ Maintains viability of semen for extended periods
- ✓ Essential for effective artificial insemination programs
- ✓ Highly pure and stable under proper storage conditions

## ✗ Disadvantages

- ✗ Requires specialized handling and storage equipment
- ✗ Extremely low temperatures can cause frostbite or injury if mishandled
- ✗ Evaporates quickly if containers are not properly sealed

## ⚠ Precautions

- ⚠ Use personal protective equipment (PPE) including gloves and face shields
- ⚠ Store in well-ventilated areas to prevent nitrogen gas buildup
- ⚠ Avoid direct contact with skin or eyes
- ⚠ Ensure containers are properly maintained and inspected regularly

## ✅ Handling Instructions

- Always handle with insulated gloves and protective eyewear
- Use Dewar flasks designed for cryogenic liquids
- Transport carefully to avoid spills or rapid evaporation
- Regularly check container pressure and refill as needed

## ✅ Sterilization Details

- Not applicable for liquid nitrogen itself
- Storage containers should be cleaned according to manufacturer guidelines

## ✅ HS / HSN Code

Code Type	Code	Description
HS Code	2811.29	Liquefied gases – Liquid nitrogen
HSN Code (India)	2811.29.90	Other liquefied gases – Liquid nitrogen for medical/veterinary use

## ✅ Human Application

- ✅ Used in human medicine for cryopreservation of semen and other biological samples
- ✅ Used in assisted reproductive technologies (ART) clinics

## ✔ **Veterinary Application**

- ✔ Used extensively in animal breeding centers for semen storage and artificial insemination programs
- ✔ Used in research institutions for preservation of genetic material

## ✔ **Frequently Asked Questions (FAQs)**

### **Q: Is liquid nitrogen dangerous to handle?**

Yes, it is extremely cold and can cause severe frostbite; always use proper PPE.

### **Q: Can liquid nitrogen be used for both human and veterinary applications?**

Yes, it is widely used in both fields for semen preservation.

### **Q: How long can semen be stored in liquid nitrogen?**

Indefinitely, if stored properly in sealed cryogenic containers.

### **Q: What precautions are necessary for storing liquid nitrogen?**

Storage areas must be well-ventilated and containers must be regularly inspected.

