

MATERIAL SAFETY DATA SHEET (MSDS)

Product Name: Liquid Nitrogen

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Liquid Nitrogen

Product Use: Cryogenic coolant, industrial applications

Company Name: Indo-Ghana Industries Ltd

Address: B-6158 Dadeban Rd. North Industrial Area, Accra, Ghana

Telephone Number: 054 431 3876

Emergency Contact: 054 431 3876

Date of Preparation: 12/9/2023

SECTION 2: HAZARDS IDENTIFICATION

Liquid Nitrogen is a cryogenic substance that poses certain hazards if not handled properly.

Classification of the Substance:

- Physical hazards: Extremely cold, can cause frostbite or cryogenic burns on contact with skin or eyes.
- Health hazards: None under normal conditions, but oxygen deficiency may occur in confined spaces.

Signal Word: **Danger**

Hazard Statements:

- H280: Contains gas under pressure; may explode if heated.
- H314: Causes severe skin burns and eye damage.
- H336: May cause drowsiness or dizziness.
- H270: May cause or intensify fire; oxidizer.
- H220: Extremely flammable gas.

Precautionary Statements:

- P210: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources.
- P261: Avoid breathing gas.
- P280: Wear protective gloves, eye protection, and face protection.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P501: Dispose of contents/container in accordance with local regulations.

Emergency Overview:

- Liquid Nitrogen is an extremely cold, colorless, and odorless gas.
- Do not expose to open flames, sparks, or heat sources.
- Keep containers tightly closed and stored in a cool, well-ventilated area.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Nitrogen (N₂)

- CAS Number: 7727-37-9
- Percentage: 100%

SECTION 4: FIRST-AID MEASURES

Inhalation:

- Move to fresh air.
- If not breathing, administer artificial respiration.
- Seek medical attention if symptoms persist.

Skin Contact:

- Immediately flush with plenty of water.
- Remove contaminated clothing and shoes.
- Seek medical attention if skin irritation or frostbite occurs.

Eye Contact:

- Rinse with gentle, continuous flow of water for at least 15 minutes.
- Remove contact lenses if present and easily removable.
- Seek immediate medical attention.

Ingestion:

- Rinse mouth with water.
- Do not induce vomiting.
- Seek medical attention if ingested.

SECTION 5: FIRE-FIGHTING MEASURES

Flammability:

- Liquid Nitrogen is not flammable. However, it may intensify an existing fire.

Fire Extinguishing Media:

- Use water spray, carbon dioxide, or dry chemical extinguishers for surrounding fires.

Firefighting Instructions:

- Evacuate the area and contact emergency services if a fire involving Liquid Nitrogen cannot be controlled.
- Do not use water directly on Liquid Nitrogen fires as it may intensify the fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:

- Wear appropriate personal protective equipment (PPE).
- Evacuate the area if there is a risk of oxygen deficiency.

Environmental Precautions:

- Prevent further leakage or spillage if it can be done safely.
- Avoid release into the environment.

Clean-Up Methods:

- Ventilate the area.
- Use absorbent materials to soak up spills.
- Place in a suitable container for disposal in accordance with local regulations.

SECTION 7: HANDLING AND STORAGE

Handling Precautions:

- Avoid contact with skin and eyes.
- Use only in well-ventilated areas.
- Use appropriate PPE, including gloves, safety goggles, and face protection.

Storage Conditions:

- Store in tightly closed containers in a cool, well-ventilated area.
- Keep away from sources of heat, ignition, and direct sunlight.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

- OSHA Permissible Exposure Limit (PEL): 1910.1000 Table Z-1-A - TWA: 49 CFR 1910.1000 Table Z-2 - STEL: Not established

Engineering Controls:

- Use local exhaust ventilation or other engineering controls to maintain air concentrations below exposure limits.

Personal Protective Equipment (PPE):

- Eye Protection: Safety goggles or face shield
- Hand Protection: Cryogenic gloves
- Skin Protection: Wear suitable protective clothing to prevent frostbite.

- Respiratory Protection: Use in a well-ventilated area. Use NIOSH-approved respirators when necessary.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas

Color: Colorless

Odor: Odorless

Boiling Point: -196°C (-321°F)

Melting Point: -210°C (-346°F)

Density: 0.808 g/cm³ at -196°C (-321°F)

Vapor Pressure: 1 atm at -196°C (-321°F)

Solubility in Water: Slightly soluble

SECTION 10: STABILITY AND REACTIVITY

Stability:

- Stable under normal conditions.

Conditions to Avoid:

- Avoid exposure to open flames, sparks, and heat sources.

Incompatible Materials:

- May react violently with combustible materials.

Hazardous Decomposition Products:

- Nitrogen oxides (NOx) may form in the presence of air.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity:

- Inhalation: Not expected to be acutely toxic.
- Skin Contact: May cause frostbite or cryogenic burns.
- Eye Contact: May cause severe eye damage.
- Ingestion: Not expected to be acutely toxic.

Chronic Toxicity:

- No chronic toxicity data available.

SECTION 12: ECOLOGICAL INFORMATION

Environmental Impact:

- Liquid Nitrogen is not considered a significant environmental hazard.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:

- Dispose of Liquid Nitrogen and its containers in accordance with local, state, and national regulations.

SECTION 14: TRANSPORT INFORMATION

****UN Number:**** UN1977

****Shipping Name:**** Nitrogen, Refrigerated Liquid

****Hazard Class:**** 2.2

****Packing Group:**** None

SECTION 15: REGULATORY INFORMATION

Regulatory Status:

- This product may be subject to various regulations, including occupational exposure limits, transportation, and disposal regulations.

SECTION 16: OTHER INFORMATION

This Material Safety Data Sheet (MSDS) is provided for informational purposes only. It is based on available information and is believed to be accurate and reliable. However,