

MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hydrogen

Product Use: Gas Manufacturing

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

Classification:

- GHS Classification: Flammable Gas (Category 1)

Label Elements:

- Hazard Pictogram: Flame

- Signal Word: Danger

- Hazard Statements:

- H220: Extremely flammable gas

- H280: Contains gas under pressure; may explode if heated

Precautionary Statements:

- P210: Keep away from heat, sparks, open flames, hot surfaces, and other ignition sources. No smoking.

- P377: Leaking gas fire: Do not extinguish unless the flow can be stopped safely.

- P381: Eliminate all ignition sources if safe to do so.

- P403+P233: Store in a well-ventilated place. Keep container tightly closed.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name: Hydrogen (H₂)

CAS Number: 1333-74-0

EC Number: 215-605-7

Hazardous Ingredients:

- Hydrogen (H₂) > 99.9%

SECTION 4: FIRST AID MEASURES

Inhalation:

- Remove the affected person to fresh air immediately.
- Provide artificial respiration if breathing is difficult.
- Seek medical attention if symptoms persist.

Skin Contact:

- Remove contaminated clothing and wash skin with plenty of water.
- Seek medical attention if irritation or redness develops.

Eye Contact:

- Rinse eyes with water for at least 15 minutes, holding eyelids open.
- Seek medical attention if irritation or redness persists.

Ingestion:

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

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

- Use extinguishing media suitable for flammable gases (e.g., dry chemical powder, carbon dioxide, or foam).

Special Firefighting Procedures:

- Evacuate the area.
- Isolate the leak or spill area.
- Protect personnel and control sources of ignition.
- Use water spray to cool containers exposed to heat.

Unsuitable Extinguishing Media:

- Do not use water directly on the fire; it may spread the flames.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:

- Evacuate the area.
- Ensure adequate ventilation.
- Wear appropriate protective equipment (see Section 8).

Environmental Precautions:

- Prevent further release and contamination of soil, surface water, and groundwater.

Methods for Cleaning Up:

- Stop the leak if safe to do so.

- Ventilate the area.
 - Remove all sources of ignition.
 - Use non-sparking tools.
 - Contain and collect the gas with inert absorbent materials.
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SECTION 7: HANDLING AND STORAGE

Handling:

- Use only in well-ventilated areas.
- Keep away from open flames, hot surfaces, and other ignition sources.
- Do not smoke while handling.
- Avoid contact with incompatible materials.

Storage:

- Store in a cool, dry, and well-ventilated area.
 - Store away from flammable materials.
 - Store in a well-ventilated area away from direct sunlight.
 - Keep containers tightly closed.
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SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

- Provide adequate ventilation in areas where hydrogen is used or stored.
- Use explosion-proof equipment in hazardous areas.

Personal Protective Equipment (PPE):

- Eye Protection: Safety goggles or face shield.
- Hand Protection: Chemical-resistant gloves.
- Respiratory Protection: Use a NIOSH-approved gas mask with appropriate canisters.
- Skin Protection: Lab coat or protective clothing as necessary.

Exposure Limits:

- OSHA Permissible Exposure Limit (PEL): 1000 ppm (8-hour TWA)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas

Color: Colorless

Odor: Odorless

Boiling Point: -252.8°C (-423°F)

Melting Point: -259.16°C (-434.49°F)

Density: 0.08988 g/cm³ (at 0°C, 1 atm)

SECTION 10: STABILITY AND REACTIVITY

Stability:

- Stable under normal conditions.

Conditions to Avoid:

- Avoid heat, flames, sparks, and other ignition sources.

Materials to Avoid:

- Incompatible with oxidizing agents.

Hazardous Decomposition Products:

- Hydrogen may form explosive mixtures with air.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity:

- No specific information available.

Chronic Toxicity:

- Prolonged inhalation may lead to dizziness, headache, and nausea.

Carcinogenicity:

- Not classified as a carcinogen by IARC, NTP, or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

- No specific ecological information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:

- Dispose of in accordance with local, state, and national regulations.

SECTION 14: TRANSPORT INFORMATION

UN Number: UN1049

Transport Hazard Class: 2.1 (Flammable Gas)

Packing Group: None

SECTION 15: REGULATORY INFORMATION

Regulatory Information:

- Comply with all applicable local, state, and national regulations.

SECTION 16: OTHER INFORMATION

Additional Information:

- This Material Safety Data Sheet is provided as a service to our customers and is based on information believed to be reliable.
- For emergency assistance, contact the emergency number provided.

Disclaimer:

- The information and recommendations contained herein are based on data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by exposure to, or contact with, the product.