

# SAFETY DATA SHEET

BOP HYDROGEN PRODUCT

## Section 1. Identification

<b>Product name</b>	: BOP HYDROGEN PRODUCT See Section 16 for synonyms.
<b>Product description</b>	: Element; Gas or Liquefied Gas
<b><u>Relevant identified uses of the substance or mixture and uses advised against</u></b>	
<b>Identified uses</b>	: Manufacturing Use Only - Not for Commercial Use, Process chemical
<b>Uses advised against</b>	: This product is not recommended for any industrial, professional or consumer use other than the identified uses above.
<b>Supplier</b>	: ExxonMobil Product Solutions Company (a division of Exxon Mobil Corporation) SDS – LOC. 106 22777 Springwoods Village Parkway Spring, TX 77389-1425 USA
<b>24-Hour emergency telephone number</b>	: 1-800-424-9300 / +1 703-741-5970 / +1-703-527-3887 (CHEMTREC)
<b>Supplier General Contact</b>	: (832) 624-8500
<b>SDS Internet Address</b>	: <a href="http://www.sds.exxonmobil.com">www.sds.exxonmobil.com</a>

## Section 2. Hazards identification

<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Classification of the substance or mixture</b>	: FLAMMABLE GASES - Category 1 PYROPHORIC GASES GASES UNDER PRESSURE - Liquefied gas SIMPLE ASPHYXIANTS
<b><u>GHS label elements</u></b>	
<b>Hazard pictograms</b>	: 
<b>Signal word</b>	: Danger
<b>Hazard statements</b>	: H220 - Extremely flammable gas. H250 - Catches fire spontaneously if exposed to air. H280 - Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.
<b><u>Precautionary statements</u></b>	
<b>Prevention</b>	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P222 - Do not allow contact with air. P280 - Wear protective gloves, protective clothing and eye or face protection.
<b>Response</b>	: P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - In case of leakage, eliminate all ignition sources.
<b>Storage</b>	: P410 + P403 - Protect from sunlight. Store in a well-ventilated place.
<b>Supplemental label elements</b>	: Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.
<b>Hazards not otherwise classified</b>	: None known.

## Section 2. Hazards identification

**Note** : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. If burned by contact with hot material, molten material adhering to skin should be cooled as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
frostbite
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
frostbite
- Ingestion** : Adverse symptoms may include the following:  
frostbite

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical powder.
- Unsuitable extinguishing media** : Do not use water jet.

**Specific hazards arising from the chemical** : Spontaneously flammable in air. Contains gas under pressure. Extremely flammable gas. Runoff to sewer may create fire or explosion hazard. May re-ignite itself after fire is extinguished. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

**Hazardous combustion products** : Smoke, Fume

**Special protective actions for fire-fighters** : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

## Section 6. Accidental release measures

### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Accidental releases pose a serious fire or explosion hazard.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 6. Accidental release measures

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Thermal burn hazard - contact with hot material may cause thermal burns. Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. This product should be handled using appropriate techniques that avoid exposure to atmospheric oxygen and moisture. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use non-sparking tools. Contact with rapidly expanding gas may cause burns or frostbite.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Static Accumulator** : This material is a static accumulator.
- Loading/Unloading Temperature** : Ambient
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep under an inert atmosphere. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.
- Storage Temperature** : Ambient

**Suitable Containers/Packing** : Pipelines, Cryogenic Tank Cars

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Hydrogen	<b>ACGIH TLV (United States, 1/2024)</b> Oxygen depletion [asphyxiant] , Explosive potential.
methane	<b>ACGIH TLV (United States, 1/2024)</b> Oxygen depletion [asphyxiant] , Explosive potential.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

- Appropriate engineering controls** : Use only with adequate ventilation. Engineering controls may be required to control the primary or secondary risks associated with this product. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## Section 8. Exposure controls/personal protection

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Face shield.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

**Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.**

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Gas. [Compressed or Liquified]
- Color** : Colorless
- Odor** : Odorless
- Odor threshold** : Not applicable.
- pH** : Not applicable.
- Melting point/freezing point** : -259°C (-434.2°F)
- Boiling point or initial boiling point and boiling range** : -253°C (-423.4°F)
- Flash point** : Closed cup: -250°C (-418°F)
- Evaporation rate** : Not applicable.
- Flammability** : Flammable gases - Category 1

## Section 9. Physical and chemical properties and safety characteristics

<b>Lower and upper explosion limit/flammability limit</b>	: Lower: 4% Upper: 75%
<b>Vapor pressure</b>	: 1522.62 mm Hg [250 °C]
<b>Relative vapor density</b>	: 0.07 [Air = 1]
<b>Relative density</b>	: 0.07
<b>Solubility in water</b>	: Negligible
<b>Partition coefficient: n-octanol/water</b>	: Not applicable.
<b>Auto-ignition temperature</b>	: >35°C (>95°F) [Estimated]
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Not applicable.
<b>Molecular weight</b>	: 2
<b>Particle characteristics</b>	
<b>Median particle size</b>	: Not applicable.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with air Reactions may include the following: spontaneous flammability
<b>Conditions to avoid</b>	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow contact with air. See Footnote
<b>Incompatible materials</b>	: Reactive or incompatible with the following materials:.,air,See Footnote
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

#### Conclusion/Summary

<b>Inhalation</b>	: Minimally Toxic. No end point data for material. Based on assessment of the components.
<b>Dermal</b>	: Minimally Toxic. No end point data for material.
<b>Oral</b>	: Minimally Toxic. No end point data for material.

#### Irritation/Corrosion

#### Conclusion/Summary

<b>Skin</b>	: Negligible irritation to skin at ambient temperatures. No end point data for material. Based on assessment of the components.
<b>Eyes</b>	: May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.
<b>Respiratory</b>	: Negligible hazard at ambient/normal handling temperatures. No end point data for material.

#### Respiratory or skin sensitization

## Section 11. Toxicological information

### Conclusion/Summary

**Skin** : Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.

**Respiratory** : Not expected to be a respiratory sensitizer. No end point data for material.

### Mutagenicity

**Conclusion/Summary** : Not expected to be a germ cell mutagen. No end point data for material. Based on assessment of the components.

### Carcinogenicity

**Conclusion/Summary** : Not expected to cause cancer. No end point data for material. Based on assessment of the components.

### Reproductive toxicity

**Conclusion/Summary** : Not expected to be a reproductive toxicant. No end point data for material. Based on assessment of the components.

### Specific target organ toxicity (single exposure)

**Conclusion/Summary** : Not expected to cause organ damage from a single exposure. No end point data for material.

### Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
BOP HYDROGEN PRODUCT	Not applicable.	-

**Conclusion/Summary** : Not expected to cause organ damage from prolonged or repeated exposure. No end point data for material. Based on assessment of the components.

### Aspiration hazard

**Conclusion/Summary** : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. No end point data for material.

### Other information

**Product** : Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects. Simple asphyxiant: Acts by displacing oxygen in the lungs thereby diminishing the supply of oxygen available to the blood and tissues. Symptoms include shortness of breath, rapid heart rate, incoordination, lethargy, headaches, nausea, vomiting, and disorientation. Continued lack of oxygen may result in convulsions, loss of consciousness and death. Since exercise increases the tissue need for oxygen, symptoms will occur more quickly during exertion in an oxygen-deficient environment. Oxygen in enclosed spaces should be maintained at 21 percent by volume. Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug.

## Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

### Toxicity

#### Conclusion/Summary

**Acute toxicity** : Not expected to be harmful to aquatic organisms.

**Chronic toxicity** : Not expected to demonstrate chronic toxicity to aquatic organisms.

#### Persistence and degradability

Not determined.

#### Bioaccumulative potential

Not determined.

## Section 12. Ecological information

### Mobility in soil

**Mobility** : Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

### Other ecological information

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
<b>UN number</b>	UN1049	UN1049	UN1049	UN1049
<b>UN proper shipping name</b>	Hydrogen, compressed	HYDROGEN, COMPRESSED	HYDROGEN, COMPRESSED	Hydrogen, compressed
<b>Transport hazard class(es)</b>	2.1	2.1	2.1	2.1
<b>Label(s) / Marks</b>				
<b>Packing group</b>	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.

### Additional information

**DOT Classification** : **Limited quantity** Yes.  
**Packaging instruction** Exceptions: 306. Non-bulk: 302. Bulk: 302, 314.  
**Quantity limitation** Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.  
**Special provisions** N89

**TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).  
**Explosive Limit and Limited Quantity Index** 0.125  
**ERAP Index** 3000  
**Passenger Carrying Vessel Index** Forbidden  
**Passenger Carrying Road or Rail Index** Forbidden

**IMDG** : **Emergency schedules** F-D, S-U  
**Special provisions** 392, 974  
Flash point -250 °C C.C.

## Section 14. Transport information

**IATA** : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.  
**Special provisions** A1

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not applicable.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**Clean Air Act (CAA) 112 regulated flammable substances:** hydrogen; methane

### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : FLAMMABLE GASES - Category 1  
PYROPHORIC GASES  
GASES UNDER PRESSURE - Liquefied gas  
SIMPLE ASPHYXIANTS

### SARA 313

This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

### State regulations

**Massachusetts** : The following components are listed: HYDROGEN; METHANE

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: HYDROGEN; METHANE

**Pennsylvania** : The following components are listed: HYDROGEN; METHANE

**Illinois** : None of the components are listed.

### Inventory list

**Australia inventory (AIC)** : All components are listed or exempted.

**Canada inventory (DSL-NDSL)** : All components are listed or exempted.

**China inventory (IECSC)** : All components are listed or exempted.

## Section 15. Regulatory information

Japan inventory (CSCL)	: All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act)	: Not determined.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		4
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### National Fire Protection Association (U.S.A.)



### Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1	On basis of test data
PYROPHORIC GASES	On basis of test data
GASES UNDER PRESSURE - Liquefied gas	On basis of test data
SIMPLE ASPHYXIANTS	Expert judgment

### History

Date of issue/Date of revision : 13 December 2024

Date of previous issue : 10 September 2024

Version : 1.02

### Key to abbreviations

: ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 SGG = Segregation Group

## Section 16. Other information

UN = United Nations

### References

: Not available.

✔ Indicates information that has changed from previously issued version.

### THIS SDS COVERS THE FOLLOWING MATERIALS :

LINDE HYDROGEN TO CRISP | SAR 2 HYDROGEN TO CRISP | DHU 2 HYDROGEN FROM GRID | DHU 2 TAIL GAS TO DHU 1 | DHU 1 RECYCLE GAS | DHU 1 PURGE GAS TO PSA ; CCFU TREAT GAS

### Product code

: 1148826\_13417760

### Notice to reader

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