



























# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

## Hydrogen

Version 1.0      Revision Date: 04/01/2022      SDS Number: VRAM00017      Print Date: 04/01/2022  
Date of last issue: 04/01/2022

---

toxicity)      Practically non toxic:  
Based on available data, the classification criteria are not met.

Toxicity to algae (Acute toxicity) :  
Remarks: LL/EL/IL50 > 100 mg/l  
Practically non toxic:  
Based on available data, the classification criteria are not met.

Toxicity to fish (Chronic toxicity) :      Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) :      Remarks: Data not available

Toxicity to microorganisms (Acute toxicity) :      Remarks: LL/EL/IL50 > 100 mg/l  
Practically non toxic:  
Based on available data, the classification criteria are not met.

### Persistence and degradability

#### Product:

Biodegradability :      Remarks: Oxidises rapidly by photo-chemical reactions in air.  
Readily biodegradable.

### Bioaccumulative potential

#### Product:

Bioaccumulation :      Remarks: Does not bioaccumulate significantly.

### Mobility in soil

#### Product:

Mobility :      Remarks: Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found.

### Other adverse effects

#### Product:

Additional ecological information :      In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

---

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues :      It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal meth-

# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR  
1910.1200

## Hydrogen

Version	Revision Date:	SDS Number:	Print Date: 04/01/2022
1.0	04/01/2022	VRAM00017	Date of last issue: 04/01/2022

ods in compliance with applicable regulations.

Contaminated packaging : After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not pollute the soil, water or environment with the waste container. Return part-used or empty cylinders to the supplier. Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

### Local legislation

Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

## SECTION 14. TRANSPORT INFORMATION

### National Regulations

#### US Department of Transportation Classification (49 CFR Parts 171-180)

UN/ID/NA number	: UN 1049
Proper shipping name	: HYDROGEN, COMPRESSED
Class	: 2.1
Packing group	: Not Assigned
Labels	: 2.1
ERG Code	: 115
Marine pollutant	: no

### International Regulations

#### IATA-DGR

UN/ID No.	: UN 1049
Proper shipping name	: HYDROGEN, COMPRESSED
Class	: 2.1
Packing group	: Not Assigned
Labels	: 2.1

#### IMDG-Code

UN number	: UN 1049
Proper shipping name	: HYDROGEN, COMPRESSED
Class	: 2.1
Packing group	: Not Assigned
Labels	: 2.1
Marine pollutant	: no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

### Special precautions for user

# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

## Hydrogen

Version 1.0      Revision Date: 04/01/2022      SDS Number: VRAM00017      Print Date: 04/01/2022  
Date of last issue: 04/01/2022

Remarks : Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

### SECTION 15. REGULATORY INFORMATION

#### EPCRA - Emergency Planning and Community Right-to-Know Act

##### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
hydrogen	1333-74-0	100	100

\*: The components with RQs are given for information.

##### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

##### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Gases under pressure

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

##### Clean Water Act

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

##### US State Regulations

###### Pennsylvania Right To Know

hydrogen	1333-74-0
methane	74-82-8
Nitrogen	7727-37-9

###### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

###### California List of Hazardous Substances

hydrogen	1333-74-0
methane	74-82-8

##### Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR  
1910.1200

## Hydrogen

Version	Revision Date:	SDS Number:	Print Date: 04/01/2022
1.0	04/01/2022	VRAM00017	Date of last issue: 4/01/2022

---

**The components of this product are reported in the following inventories:**

TSCA : All components listed.

---

### SECTION 16. OTHER INFORMATION

#### Further information

#### Full text of other abbreviations

Abbreviations and Acronyms : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists  
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road  
AICS = Australian Inventory of Chemical Substances  
ASTM = American Society for Testing and Materials  
BEL = Biological exposure limits  
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes  
CAS = Chemical Abstracts Service  
CEFIC = European Chemical Industry Council  
CLP = Classification Packaging and Labelling  
COC = Cleveland Open-Cup  
DIN = Deutsches Institut für Normung  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
DSL = Canada Domestic Substance List  
EC = European Commission  
EC50 = Effective Concentration fifty  
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals  
ECHA = European Chemicals Agency  
EINECS = The European Inventory of Existing Commercial Chemical Substances  
EL50 = Effective Loading fifty  
ENCS = Japanese Existing and New Chemical Substances Inventory  
EWC = European Waste Code  
GHS = Globally Harmonised System of Classification and Labelling of Chemicals  
IARC = International Agency for Research on Cancer  
IATA = International Air Transport Association  
IC50 = Inhibitory Concentration fifty  
IL50 = Inhibitory Level fifty  
IMDG = International Maritime Dangerous Goods  
INV = Chinese Chemicals Inventory  
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables  
KECI = Korea Existing Chemicals Inventory



# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR  
1910.1200

## Hydrogen

Version	Revision Date:	SDS Number:	Print Date: 04/01/2022
1.0	04/01/2022	VRAM00017	Date of last issue: 04/01/2022

---

LC50 = Lethal Concentration fifty  
LD50 = Lethal Dose fifty per cent.  
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading  
LL50 = Lethal Loading fifty  
MARPOL = International Convention for the Prevention of  
Pollution From Ships  
NOEC/NOEL = No Observed Effect Concentration / No Ob-  
served Effect Level  
OE\_HPVS = Occupational Exposure - High Production Volume  
PBT = Persistent, Bioaccumulative and Toxic  
PICCS = Philippine Inventory of Chemicals and Chemical  
Substances  
PNEC = Predicted No Effect Concentration  
REACH = Registration Evaluation And Authorisation Of  
Chemicals  
RID = Regulations Relating to International Carriage of Dan-  
gerous Goods by Rail  
SKIN\_DES = Skin Designation  
STEL = Short term exposure limit  
TRA = Targeted Risk Assessment  
TSCA = US Toxic Substances Control Act  
TWA = Time-Weighted Average  
vPvB = very Persistent and very Bioaccumulative

A vertical bar (|) in the left margin indicates an amendment from the previous version.

|| Due to a change in detail in Section 15, this document has been released as a significant change.

Revision Date : 04/01/2022

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / EN