

SAFETY DATA SHEET



DOR CHEMICALS LTD.
A MEMBER OF THE DANKNER GROUP

Trade Name: HYDROGEN

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1: Identification

Commercial Product Name: Hydrogen

Manufacturer: Dor Chemicals Ltd.

P.O.B 10036 Haifa

Israel 31000

Tel For informational call: +972-4-865000

2: Composition/Information on Ingredients

Chemical characterization: Compressed gas, colorless, odorless

Hazardous ingredients:

Chemical name	CAS-No	EINECS-No	Concentration %	Classification
Hydrogen compressed	001333-74-0	215-605-7	100	R12 F+

(See full text of R-phrases in chapter 16.)

3: Hazards Identification

R12: Extremely flammable.

4: First Aid Measures

Symptoms: The gas is not dangerous but in confined places may cause suffocation due to oxygen displacement. Possible symptoms: blueness, shortness of breath, unconsciousness and asphyxia. In skin contact can cause severe frostbite.

Skin contact: Immediately remove contaminated clothing and shoes. Rinse with large amounts of water for at least 10 minutes.

Eyes contact: Rinse open eyes under running water for at least 15 minutes. Get medical attention.

Ingestion: Gas, ingestion is not considered a potential route of exposure.

Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

5: Fire-Fighting Measures

Flammability: Highly flammable.

Suitable extinguishing media: CO₂, dry chemical, water spray or fog for surrounding area. Do not extinguish until hydrogen source is shut off. Water spray may be used to keep fire-exposed containers cool.

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Wear full protective cloths and self-contained breathing apparatus.

Vapor-air mixtures are explosive within flammable limits. Vapor may travel considerable distance to source of ignition and flash back. Burns with a pale blue, nearly invisible flame. Hydrogen is easily ignited with low-ignition energy, including static electricity.

6: Accidental Release Measures

The Fire Department must be called in any case of gas cylinders involved in fire!!!

Use self-contained breathing apparatus. Stop leakage if you can do it without risk. Ventilate area by opening windows, etc. In case of fire, cool from a safe place and at a safe distance containers exposed to heat. Continue cooling containers for a considerable time after fire is extinguished.

CAUTION -- In the event that a gas cylinder explodes, "fire-ball" effect may occur.

7: Handling and Storage

Keep away from incompatible materials (see section 10).

Highly flammable gas. Keep away from flame, sparks, static electricity, friction or any other heat source that may cause ignition. Keep in well-ventilated area. In areas of storage and use, it is advisable that the electrical system will be adjusted to working in an explosive atmosphere. Cylinders storing area should have a water sprinkling system to cool down cylinders in case of fire.

Safety phrases

Keep out of the reach of children
 Keep container in a well-ventilated place
 Keep away from sources of ignition - No smoking
 Take precautionary measures against static discharges.

Storage: Store in a cool, dry, well-ventilated area. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop

Store separately from oxidizing agents.

8: Exposure Control and Personal Protection

Threshold values:

ACGIH-TLV Simple asphyxiant
 OSHA PEL simple asphyxiant-inert gases and vapors

Personal Protective equipment: Generally, personal protection is a function of exposure. It is recommended to use working shoes, working clothes or lab coat. Working should be done in a well-ventilated area. In addition: gloves, safety goggles.

Respiratory protection: Air supplied respirators are required in oxygen-deficient atmospheres. Be sure to use an approved/certified respirator or equivalent.

In case of an emergency: Full protective gear and a self-contained breathing apparatus should be used, according to the severity.

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9: Physical and Chemical Properties:

General information:

Form: Gas

Color: colorless

Important health, safety and environmental information:

Boiling point °C: -252.8

Freezing point °C: -259.1

Molecular weight: 2

Density g/cm³ (20°C): 0.07

Vapor density (air=1): 0.07

Vapor pressure (mmHg)(26°C) :N/A

Solubility (in water): Slightly Insoluble in water.

pH: N/A

Flash point °C: N/A

Auto-ignition temperature °C: 565

LEL: 4% UEL: 75%

Viscosity (20°C): N/A

10: Stability and Reactivity

Hazardous polymerization: Will not occur.

Chemical reactivity: Stable under ordinary use. Keep away from strong oxidizers
Highly flammable gas. Keep away from flame, sparks, or any other heat source.

Hazardous decomposition products: None.

11: Toxicological Information

No toxicological Information

Carcinogenicity:

No data available

12: Ecological Information

Environmental hazards: No adverse ecological effects are expected.

Biodegradability: readily biodegradable.

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13: Disposal Considerations

According to the Israeli regulations, a holder of this waste must evacuate it as soon as possible and not later than 6 months after the production of the waste, to the Ramat-Hovav waste site. The waste should be packed and transported according to the regulations. For packing group and transport classification of the waste refer to section 14.

14: Transport Information

UN recommendations: UN 1049

Proper shipping name: HYDROGEN, COMPRESSED

Class 2.1

Packing group: not relevant.

LABEL: "FLAMMABLE GAS' : 2SE

Sea transport:

IMDG: UN 1049

Class: 2.1

Proper technical name: HYDROGEN, COMPRESSED

Packing group: not relevant

Air transport:

ICAO/IATA: UN 1049

Class: 2.1

Proper technical name: HYDROGEN, COMPRESSED

Packing group: not relevant

Estimated NFPA: H: 0 F: 4 R: 0

15: Regulatory Information

Labeling in accordance with EC directives

Symbol and indicating of hazard: F+,



R-phrases:

R12: Extremely flammable.


S-phrases:

S02: Keep out of the reach of children

S09: Keep container in a well-ventilated place

S16: Keep away from sources of ignition - No smoking

S33: Take precautionary measures against static discharges

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16: Other Information

Full text of R-phrases with No. appearing in section 2:
R12: Extremely flammable.

Date of issue: 11TH July 2006

The information herein is based on the present state of our knowledge. It is believed to be correct but is not necessarily all inclusive and shall be used only as a guide. DOR CHEMICALS Ltd, and Haz-Mat Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product. For further information, contact DOR CHEMICALS Ltd or contact Haz-Mat at hazmat@hazmat.co.il.