

# Hydrogen (Bulk Trailers)

PRODUCT: MSDS NR: 302-00-0057BOC(U) VERSION: 1.00 DATE: 02/09/2004

## 1 IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND OF THE COMPANY

<b>Product name</b>	Hydrogen
<b>Chemical formula</b>	H <sub>2</sub>
<b>Company identification</b>	see heading and/or footer
<b>Emergency phone Nos</b>	see heading and/or footer

## 2 COMPOSITION/INFORMATION ON INGREDIENTS

<b>Substance/Preparation</b>	Substance
<b>Components/Impurities</b>	Contains no other components or impurities which will influence the classification of the product.
<b>CAS Nr</b>	1333-74-0
<b>EEC Nr (from EINECS)</b>	215-605-7

## 3 HAZARDS IDENTIFICATION

<b>Hazards identification</b>	Compressed gas Extremely flammable
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## 4 FIRST AID MEASURES

<b>Inhalation</b>	In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness.  Victim may not be aware of asphyxiation.  Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
<b>Ingestion</b>	Ingestion is not considered a potential route of exposure.

## 5 FIRE FIGHTING MEASURES

<b>Specific hazards</b>	Exposure to fire may cause containers to rupture/explode.
<b>Hazardous combustion products</b>	None.
<b>Suitable extinguishing media</b>	All known extinguishants can be used.
<b>Specific methods</b>	If possible, stop flow of product.  Move away from the container and cool with water from a protected position.  Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.  Extinguish any other fire.
<b>Special protective equipment for fire fighters</b>	Use self-contained breathing apparatus.

## 6 ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Eliminate ignition sources.
<b>Environmental precautions</b>	Try to stop release.
<b>Clean up methods</b>	Ventilate area.

## 7 HANDLING AND STORAGE

<b>Handling and storage</b>	Ensure equipment is adequately earthed.  Suck back of water into the container must be prevented.  Purge air from system before introducing gas.  Do not allow backfeed into the container.  Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.  Contact your gas supplier if in doubt.  Keep away from ignition sources (including static discharges).  Segregate from oxidant gases and other oxidants in store.  Refer to supplier's container handling instructions.  Keep container below 50°C in a well ventilated place.
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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Personal protection</b>	Ensure adequate ventilation. Do not smoke while handling product.
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## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Molecular weight</b>	2
<b>Melting point</b>	-259°C
<b>Boiling point</b>	-253°C
<b>Critical temperature</b>	-240°C
<b>Relative density, gas</b>	0.07 (air= 1)
<b>Relative density, liquid</b>	Not applicable
<b>Vapour Pressure 20°C</b>	Not applicable
<b>Solubility mg/l water</b>	1.6 mg/l
<b>Appearance/Colour</b>	Colourless gas
<b>Odour</b>	None
<b>Autoignition temperature</b>	560 °C
<b>Flammability range</b>	4-75 vol% in air
<b>Other data</b>	Burns with a colourless invisible flame.

## 10 STABILITY AND REACTIVITY

<b>Stability and reactivity</b>	Can form explosive mixture with air. May react violently with oxidants.
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# SAFETY DATA SHEET

## 11 TOXICOLOGICAL INFORMATION

**General** No known toxicological effects from this product.

## 12 ECOLOGICAL INFORMATION

**General** No known ecological damage caused by this product.

## 13 DISPOSAL CONSIDERATIONS

**General** Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.

## 14 TRANSPORT INFORMATION

**Proper Shipping Name** Hydrogen, Compressed  
**UN Nr** 1049  
**Class/Div** 2.1  
**ADR/RID Classification Code** 1F  
**ADR/RID Hazard Nr** 23  
**Labelling ADR** 2.1 Label 3: flammable gas.  
**Other transport information** Avoid transport on vehicles where the load space is not separated from the driver's compartment.  
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.  
Before transporting product containers ensure that they are firmly secured and:  
– cylinder valve is closed and not leaking  
– valve outlet cap nut or plug (where provided) is correctly fitted  
– valve protection device (where provided) is correctly fitted  
– there is adequate ventilation.  
– compliance with applicable regulations.

## 15 REGULATORY INFORMATION

**Number in Annex I of Dir 67/548** 001-001-00-9.  
**EC Classification** F+;R12.  
**– Symbols** F+: Extremely flammable  
**Labelling of cylinders**  
**– Symbols Label** 2.1: flammable gas  
**– Risk phrases** R12 Extremely flammable.  
**– Safety phrases** S9 Keep container in well ventilated place.  
S16 Keep away from ignition sources – No smoking.  
S33 Take precautionary measures against static discharges.

## 16 OTHER INFORMATION

Ensure all national/local regulations are observed.  
Ensure operators understand the flammability hazard.  
The hazard of asphyxiation is often overlooked and must be stressed during operator training.  
Users of breathing apparatus must be trained.  
This Safety Data Sheet has been established in accordance with applicable European Directives and applies to all countries that have translated the Directives in their national laws.  
Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

### Bulk Hydrogen Specification

Hydrogen > 99.98%v/v  
Oxygen < 5 vpm  
Moisture < 8 vpm  
Hydrocarbons < 10 vpm  
Nitrogen < 100 vpm



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