

SAFETY DATA SHEET

Hydrogen, compressed

Date: 05.10.2008
replaces version dated: 26.10.2000

Version 3.0

SDS-No.: 8360/7-Eng
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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND NAME OF THE COMPANY

Product name
Hydrogen, compressed
Chemical formula: H₂
Company identification
Linde Gas Singapore Pte. Ltd.
50 Jurong Island Highway
Singapore 627877
Emergency phone number: 65.6867 8998-850

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation: Substance
Components/Impurities
Contains no other components or impurities which will influence the classification of the product.
CAS No.: 01333-74-0
EEC No. (from EINECS): 215-605-7

3 HAZARDS IDENTIFICATION

Hazards identification
Compressed gas.
Extremely flammable

4 FIRST AID MEASURES

Inhalation
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.
Ingestion
Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

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

6 ACCIDENTAL RELEASE MEASURES

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

7 HANDLING AND STORAGE

Handling and storage

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.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protection
Ensure adequate ventilation. Do not smoke while handling product.

9 PHYSICAL AND CHEMICAL PROPERTIES

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

10 STABILITY AND REACTIVITY

Stability and reactivity
Can form explosive mixture with air. May react violently with oxidants.

11 TOXICOLOGICAL INFORMATION

General
No known toxicological effects from this product. No 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.
EWC No. 16 05 01

14 TRANSPORT INFORMATION

ADR / RID: Class 2 Code 1F
IMDG: Class 2.1
IATA: Class 2.1
UN number and proper shipping name:
UN 1049 Wasserstoff, verdichtet
UN 1049 Hydrogen, compressed
Packing Instruction: P200

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Labelling according to ADR / RID:

Label 2.1: Flammable gases
ADR / RID Hazard No.: 23
CEFIC Tremcard No.: 20
CEFIC Groupcard No.: 20g04

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
- 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

Labelling of cylinders

-Symbols

F+: Extremely flammable

-Risk phrases

R12 Extremely flammable.

-Safety phrases

S9 Keep container in a well-ventilated place

S16 Keep away from sources of ignition - 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. 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.

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