



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: 99.999% HYDROGEN

MSDS NO: 83

Version:3

Date: March, 2012

1. Chemical Product and Company Identification

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PRODUCT NAME: HYDROGEN
CHEMICAL NAME: H2
COMMON NAMES/ SYNONYMS: Normal Hydrogen
TDG (Canada) CLASSIFICATION: 2.1
WHIMIS CLASSIFICATION: A, B1

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Table with 5 columns: INGREDIENT, %VOLUME, PEL-OSHA, TLV-ACGIH, LD50 or LC50 Route/Species. Row 1: HYDROGEN FORMULA: H2, 99.999%, None Established, Simple Asphyxiate, Not Available.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Odorless, colorless, extremely flammable gas. Dangerous fire and explosion hazard. Avoid heat, sparks and flames. Simple Asphyxiant – This product does not contain oxygen and may cause asphyxia if released in a confined area.

ROUTE OF ENTRY:

Table with 5 columns: Skin Contact (No), Skin Absorption (No), Eye Contact (No), Inhalation (Yes), Ingestion (No).

HEALTH EFFECTS:

Table with 5 columns: Exposure Limits (No), Irritant (No), Sensitization (No), Reproductive Hazard (No), Mutagen (No).

Carcinogenicity: --NTP: No IARC: No OSHA: No

EYE EFFECTS:

None anticipated.

SKIN EFFECTS:

None anticipated.

INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.



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### INHALATION EFFECTS:

Due to the small size of an individual cylinder of this product, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. If this product is released in a small, poorly ventilated area, an oxygen deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses.

### NFPA HAZARD CODES

Health: 0  
Flammability: 4  
Reactivity: 0

### HMIS HAZARD CODES

Health: 0  
Flammability: 4  
Reactivity: 0

### RATING SYSTEM

0= No Hazard  
1= Slight Hazard  
2= Moderate Hazard  
3= Serious Hazard  
4= Severe Hazard

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## 4. FIRST AID MEASURES

### EYES:

N/A

### SKIN:

N/A

### INGESTION:

Not required.

### INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH THE SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

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## 5. FIRE-FIGHTING MEASURES

These containers hold gas under pressure, with no liquid phase. If involved in a major fire, they should be sprayed with water to avoid pressure increases, otherwise pressures will rise and ultimately they may distort or burst to release the contents. HYDROGEN is slightly heavier than air and may travel a considerable distance to an ignition source.

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## 6. ACCIDENTAL RELEASE MEASURES

In terms of weight, these containers hold very little contents, such that any accidental release by puncturing etc. will be of no practical concern.

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## 7. HANDLING AND STORAGE

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Use only in well-ventilated areas. Do not heat cylinder by any means to increase rate of product from the cylinder. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C).

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use adequate ventilation for extended use of gas.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

PARAMETER:	VALUE:
Physical state	: Gas
Evaporation point	: N/A
pH	: N/A
Odor and appearance	: Colorless, odorless

### 10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 48 months.

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### 11. TOXICOLOGICAL INFORMATION

No toxicological damage caused by this product.

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### 12. ECOLOGICAL INFORMATION

No ecological damage caused by this product.

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### 13. DISPOSAL INFORMATION

Do not discharge into any place where its accumulation could be dangerous. Used containers are acceptable for disposal in the normal waste stream as long as the cylinder is empty and valve removed or cylinder wall is punctured; but GASCO encourages the consumer to return cylinders.

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### 14. TRANSPORT INFORMATION

	<u>United States DOT</u>	<u>Canada TDG</u>
PROPER SHIPPING NAME:	HYDROGEN, compressed	HYDROGEN, compressed
HAZARD CLASS:	2.1	2.1
IDENTIFICATION NUMBER:	UN 1049	UN 1049
SHIPPING LABEL:	FLAMMABLE GAS	FLAMMABLE GAS

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### 15. REGULATORY INFORMATION

HYDROGEN is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds.

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### 16. OTHER INFORMATION

This MSDS has been prepared in accordance with the Chemicals (Hazard Information and Packaging for Supply (Amendment) Regulation 1996. The information is based on the best knowledge of GASCO, and its advisors and is given in good faith, but we cannot guarantee its accuracy, reliability or completeness and therefore disclaim any liability for loss or damage arising out of use of this data. Since conditions of use are outside the control of the Company and its advisors we disclaim any liability for loss or damage when the product is used for other purposes than it is intended.

MSDS/S010/83/ March, 2012