



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: HYDROGEN CYANIDE (1 PPM – 200 PPM) IN NITROGEN

MSDS NO: HCN

Version:3

Date: January, 2006

1. Chemical Product and Company Identification

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PRODUCT NAME: HYDROGEN CYANIDE (10 PPM – 200 PPM) IN NITROGEN
CHEMICAL NAME: Hydrogen Cyanide in nitrogen
COMMON NAMES/ SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2
WHIMIS CLASSIFICATION: A

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Table with 5 columns: INGREDIENT, %VOLUME, PEL-OSHA, TLV-ACGIH, LD50 or LC50 Route/Species. Rows include Hydrogen Cyanide and Nitrogen.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a colorless, odorless gas. Hydrogen Cyanide is an extremely toxic gas; even brief over-exposures to relatively low doses may have significant health consequences.

ROUTE OF ENTRY:

Table showing routes of entry: Skin Contact, Skin Absorption, Eye Contact, Inhalation, Ingestion, and Health Effects: Exposure Limits, Irritant, Sensitization, Reproductive Hazard, Mutagen.

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

EYE EFFECTS:

Hydrogen Cyanide may be slightly irritating to the eyes.



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#### SKIN EFFECTS:

Contact with the skin is not irritating, however Hydrogen Cyanide can be absorbed through the skin.

#### INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.

#### INHALATION EFFECTS:

Due to the small size of this cylinder, no unusual health effects from over-exposure are anticipated under routine circumstances of use. Hydrogen Cyanide is an extremely toxic gas. It is anticipated that due to the low concentrations of Hydrogen Cyanide and the fact that this gas will quickly dissipate, employees will not be over-exposed to fatal levels. However, Hydrogen Cyanide can produce significant health effects at relatively low levels.

Hydrogen Cyanide is a protoplasmic poison, combining in tissues with the enzymes associated with oxidation, thereby rendering oxygen unavailable to these tissues, and causing death by chemical asphyxiation. Exposure to low concentrations of this gas can cause headache, vertigo, irritation of the throat, difficulty breathing, reddening of the eyes, salivation, nausea and vomiting. Chronic low level exposure to Hydrogen Cyanide over long periods of time may lead to fatigue and weakness.

Exposures to high concentrations of Hydrogen Cyanide gas produces symptoms including tachypnea (causing increased intake of cyanide), then dyspnea, weakness of arms and legs, paralysis, unconsciousness, convulsions and respiratory arrest. Exposure to 150 ppm for one-half hour may endanger life. In cases where the victim recovers, there is rarely any residual injury or disability.

At 2-5 ppm Hydrogen Cyanide has a detectable odor threshold. At 18-36 ppm slight symptoms are observed after several hours. 110-135 ppm is life threatening or fatal after 0.5-1 hour. 180 ppm is fatal after 10 minutes.

#### NFPA HAZARD CODES

Health: 3  
Flammability: 0  
Reactivity: 0

#### HMS HAZARD CODES

Health: 3  
Flammability: 0  
Reactivity: 0

#### RATING SYSTEM

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

## 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.

## 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. The gases will not add significantly to the fire, but containers or fragments may be projected considerable distances - thereby hampering fire fighting efforts.



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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 gas

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### 10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 12 months.

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### 11. TOXICOLOGICAL INFORMATION

No toxicological damage caused by this product.

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### 12. ECOLOGICAL INFORMATION

Due to the small size of this cylinder, 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>
<b>PROPER SHIPPING NAME:</b>	Compressed Gas N.O.S. (Hydrogen Cyanide in Nitrogen)	Compressed Gas N.O.S. (Hydrogen Cyanide in Nitrogen)
<b>HAZARD CLASS:</b>	2.2	2.2
<b>IDENTIFICATION NUMBER:</b>	UN1956	UN1956
<b>SHIPPING LABEL:</b>	NONFLAMMABLE GAS	NONFLAMMABLE GAS

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### 15. REGULATORY INFORMATION

Hydrogen Cyanide is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 2,500 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/HCN/January, 2006