



## MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

**PRODUCT NAME: NITRIC OXIDE (5 PPM TO 1%) IN NITROGEN**

**MSDS NO: 128**

**Version:3**

**Date: January, 2009**

### 1. Chemical Product and Company Identification

Gasco Affiliates, LLC  
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24-HOUR EMERGENCY NUMBER: 1-800-424-9300

**PRODUCT NAME:** NITRIC OXIDE (5 PPM TO 1%) IN NITROGEN  
**CHEMICAL NAME:** Nitric Oxide in Nitrogen  
**COMMON NAMES/ SYNONYMS:** None  
**TDG (Canada) CLASSIFICATION:** 2.2  
**WHIMIS CLASSIFICATION:** A

### 2. COMPOSITION/ INFORMATION ON INGREDIENTS

INGREDIENT	%VOLUME	PEL-OSHA	TLV-ACGIH	LD <sub>50</sub> or LC <sub>50</sub> Route/Species
Nitric Oxide FORMULA: NO	0.0001 to 1.0%	25 ppm TWA	25 ppm TWA	LC <sub>50</sub> 1068 mg/m <sup>3</sup> (Rat)
Nitrogen FORMULA: N <sub>2</sub>	≤99.0 to 99.9999	Simple Asphyxiant	Simple Asphyxiant	Not Available

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Nitric Oxide is severely irritating to the eyes and respiratory system. Effects may be delayed for several hours following exposure. Inhalation of high concentrations may result in chemical pneumonitis and pulmonary edema. Nitrogen is a simple asphyxiate.

#### ROUTE OF ENTRY:

Skin Contact No	Skin Absorption No	Eye Contact Yes	Inhalation Yes	Ingestion No
<b>HEALTH EFFECTS:</b>				
Exposure Limits Yes	Irritant Yes	Sensitization No	Reproductive Hazard No	Mutagen N/A

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

#### EYE EFFECTS:

Irritating to the eyes in moderate concentrations.

#### SKIN EFFECTS:

N/A



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### INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.

### INHALATION EFFECTS:

Effects of oxygen deficiency resulting from simple asphyxiates may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma and death.

Nitric Oxide vapors are a strong irritant to the pulmonary tract. At high concentrations initial symptoms of inhalation may be moderate and include irritation to the throat, tightness of the chest, headache, nausea and gradual loss of strength. Severe symptoms may be delayed and include cyanosis, increased difficulty in breathing, irregular respiration, lassitude and possible eventual death due to pulmonary edema in untreated cases.

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Individuals with impaired pulmonary function may be at increased risk from exposure.

#### NFPA HAZARD CODES

Health: 1  
Flammability: 0  
Reactivity: 0

#### HMIS HAZARD CODES

Health: 1  
Flammability: 0  
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:

PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. Seek immediate medical attention.

### SKIN:

N/A

### INGESTION:

Not required

### INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH 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. 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 6 months.

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### 11. TOXICOLOGICAL INFORMATION

Chronic or repeated exposure may cause permanent decrements in pulmonary function; however, due to the small size of this cylinder, no unusual health hazards are anticipated under normal use.

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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:	Compressed Gas N.O.S. (Nitric Oxide in Nitrogen)	Compressed Gas N.O.S. (Nitric Oxide in Nitrogen)
HAZARD CLASS:	2.2	2.2
IDENTIFICATION NUMBER:	UN1956	UN1956
SHIPPING LABEL:	NONFLAMMABLE GAS	NONFLAMMABLE GAS



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### 15. REGULATORY INFORMATION

Nitric oxide 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.