



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: NITROGEN DIOXIDE (5 PPM TO 220 PPM) IN AIR

MSDS NO: 110

Version:3

Date: January, 2009

1. Chemical Product and Company Identification

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PRODUCT NAME: NITROGEN DIOXIDE (5 PPM TO 220 PPM) IN AIR

CHEMICAL NAME: Nitrogen Dioxide in Air

COMMON NAMES/ SYNONYMS: None

TDG (Canada) CLASSIFICATION: 2.2

WHIMIS CLASSIFICATION: A

2. COMPOSITION/ INFORMATION ON INGREDIENTS

INGREDIENT	%VOLUME	PEL-OSHA	TLV-ACGIH	LD ₅₀ or LC ₅₀ Route/Species
Nitrogen Dioxide FORMULA: NO ₂	0.0005 to 0.022%	N/A	5 ppm STEL	LC ₅₀ 88 ppm/4 hours (Rat)
Air FORMULA: Mixture	≤99.978 to 99.9995%	N/A	N/A	Not Available

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a colorless, to red-brown, oxidizing gas which is either odorless or has an acrid odor. Nitrogen Dioxide is extremely toxic by inhalation, and symptoms of over-exposure may not become apparent for up to 72 hours. Over-exposures to this gas mixture may result in sever irritation of the eyes, skin, mucous membranes, and any other exposed tissue. If high concentrations of Nitrogen Dioxide (> 100 PPM) are inhaled, delayed pulmonary damage and breathing difficulty may occur.

ROUTE OF ENTRY:

Skin Contact No	Skin Absorption Yes	Eye Contact Yes	Inhalation Yes	Ingestion No
HEALTH EFFECTS: Exposure Limits Yes	Irritant Yes	Sensitization No	Reproductive Hazard No	Mutagen No

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

EYE EFFECTS:

Severe injury and swelling of the eye tissue may occur.

SKIN EFFECTS:

Symptoms of skin exposure may include scratchiness, pain, and redness. Contact with rapidly expanding gas may cause frostbite.



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INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.

INHALATION EFFECTS:

Due to the small size of this cylinder, no unusual health effects are anticipated under normal use. If this gas mixture is released in a small, poorly-ventilated area, there is potential for inhalation over-exposures to Nitrogen Dioxide. Such over-exposure can result in serious health consequences, especially if the Nitrogen Dioxide concentration is over 100 PPM.

Exposure to Nitrogen Dioxide gas in low concentrations produces an irritating effect on the mucous membranes of the eyes, nose throat, and lungs. Acute exposure through inhalation may result in dryness and irritation of the nose and throat, choking, coughing, and bronchospasm. Severe over-exposure may cause death through systemic, delayed pulmonary edema.

Delayed (5 – 72 hours) pulmonary irritation has been observed in causes of 25 PPM inhalation for 8 hours.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

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

NFPA HAZARD CODES		HMIS HAZARD CODES		RATING SYSTEM
Health:	3	Health:	3	0= No Hazard
Flammability:	0	Flammability:	0	1= Slight Hazard
Reactivity:	0	Reactivity:	0	2= Moderate Hazard
				3= Serious Hazard
				4= Severe Hazard

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:

Run water of contaminated skin for a minimum on 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. Seek immediate medical attention.

INGESTION:

Not required

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASED OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED 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.

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).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use adequate ventilation for extended use of gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

PARAMETER:	VALUE:
Physical state	: Gas
Evaporation point	: N/A
pH	: N/A
Odor and appearance	: Colorless to red-brown, oxidizing gas which is either odorless or has an acrid odor

10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 6 months.

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.

12. ECOLOGICAL INFORMATION

No ecological damage caused by this product.

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.

14. TRANSPORT INFORMATION

	<u>United States DOT</u>	<u>Canada TDG</u>
PROPER SHIPPING NAME:	Compressed Gas N.O.S. (Nitrogen Dioxide in Air)	Compressed Gas N.O.S. (Nitrogen Dioxide in Air)
HAZARD CLASS:	2.2	2.2
IDENTIFICATION NUMBER:	UN1956	UN1956
SHIPPING LABEL:	NONFLAMMABLE GAS	NONFLAMMABLE GAS



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15. REGULATORY INFORMATION

Nitrogen Dioxide is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 250 pounds.

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.