



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: CHLORINE (2 PPM TO 1000 PPM) IN NITROGEN

MSDS NO: 251

Version:3

Date: March, 2013

1. Chemical Product and Company Identification

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PRODUCT NAME: CHLORINE (2 PPM TO 200 PPM) IN NITROGEN
CHEMICAL NAME: Chlorine 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 Chlorine (Cl2) and Nitrogen (N2).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This clear, pungent-smelling, greenish gas mixture is severely irritating. Persons who respond to releases of this product must protect themselves from inhalation of chlorine, especially in areas which are downwind of the release.

ROUTE OF ENTRY:

Table showing routes of entry: Skin Contact (Yes), Skin Absorption (Yes), Eye Contact (Yes), Inhalation (Yes), Ingestion (No).

HEALTH EFFECTS:

Table showing health effects: Exposure Limits (Yes), Irritant (Yes), Sensitization (No), Reproductive Hazard (No), Mutagen (No).

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

EYE EFFECTS:

Irritating to the eyes. Contact with the liquid or vapor causes painful burns and ulcerations. Burns to the eyes result in lesions and possible loss of vision.

SKIN EFFECTS:

Irritation to the skin and all living tissue. Toxic level exposure to dermal tissue can cause acid-like burns and skin lesions resulting in early necrosis and scarring.



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INGESTION EFFECTS:

Ingestion unlikely. Gas at room temperature.

INHALATION EFFECTS:

Inhalation of chlorine may lead to irritation of the nose and throat. Additionally, over-exposures to chlorine can cause coughing, labored breathing, sore throat, and potentially fatal lung disorders. Repeated chlorine over-exposures can result in emphysema and erosion of teeth. At 3 ppm chlorine irritates the eyes and mucous membranes. At 15 ppm chlorine immediately irritates the throat. At 50 ppm there is a serious health hazard, even for short periods of time. This product may produce an oxygen deficient environment causing asphyxiation.

However, due to the small size of the cylinder, no unusual health effects are anticipated under normal routine use.

NFPA HAZARD CODES

Health: 3
Flammability: 0
Reactivity: 0

HMIS 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:

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:

Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. Seek immediate medical attention.

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.

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	: Greenish-yellow gas with a pungent odor

10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 12 months.

11. TOXICOLOGICAL INFORMATION

Chlorine becomes an irritant at 3 ppm. The odor threshold is at 0.06 ppm. Pre-existing dermatitis and respiratory conditions may be aggravated by over-exposure to this product.

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



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15. REGULATORY INFORMATION

Chlorine is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 2500 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.