



Issue date March 1, 2015

Reviewed date March 1, 2018

Safety Data Sheet

SDS ID# 5050

Section 1. IDENTIFICATION

1.1. Product identifier

Product form : Mixture

Product name : Chlorine (0.0001%-0.01%) in Nitrogen

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product use : Calibration gas/Bumptest gas/Function test gas

1.3. Details of the supplier of the safety data sheet

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687
Telephone 1-208-466-9425 or Toll free 1-800-552-5003
Fax 1-208-466-9144
www.isgases.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

Section 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification GASES UNDER PRESSURE - Compressed gas
Simple asphyxiant - Yes

2.2. Label elements

Hazard pictograms



Signal word : WARNING

Hazard statements : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
: OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.
: OSHA - PG01 - DO NOT REMOVE THIS PRODUCT LABEL

Precautionary statements



- [General] : Read and follow all Safety Data Sheets (SDS's) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have a product container or label at hand. Use equipment rated for cylinder pressure.
- [Prevention] : P202 - Do not handle until all safety precautions have been read and understood
: P308+P313 - If exposed or concerned: Get medical advice/attention.
: P271+P403- Use only outdoors or in a well-ventilated area
- [Response] : P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
: P313 - Get medical advice/attention.
- [Storage] : CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
- [Disposal] : Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No data available

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

| Name | Product Identifier | % |
|----------|--------------------|-----------------|
| Nitrogen | (CAS No) 7727-37-9 | 99.9999 - 99.99 |
| Chlorine | (CAS No) 7782-50-5 | 0.0001 - 0.01 |

Section 4. FIRST AID MEASURES

4.1. Description of first aid measures

- General : IF exposed or concerned: Get medical advice/attention.
- Inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration or oxygen by trained personnel. If victim feels unwell, seek medical advice.
- Skin contact : Immediately flush with copious amount of water for at least 15 minutes.
- Eye contact : Immediately flush with copious amount of water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure, refer to the inhalation section.

4.2. Most important symptoms/effects, acute and delayed

Acute

- Inhalation : May displace oxygen and cause rapid suffocation.
- Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.



| | |
|---|--|
| Eye contact | : Contact with rapidly expanding gas may cause burns or frostbite. |
| Ingestion | : Ingestion is not considered a potential route of exposure, refer to the inhalation section. |
| Frostbite | : Thaw frosted parts with lukewarm water. Do not rub affected areas. Get immediate medical advice/attention. |
| Symptoms/injuries upon intravenous administration | : Not known |
| Chronic symptoms | : Adverse effects not expected from this product. |
| Delayed | : Adverse effects not expected from this product. |

4.3. Indication of any immediate medical attention and special treatment needed

If victim feels unwell, seek medical advice. If breathing is difficult, give artificial respiration or oxygen by trained personnel.

Section 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

| | |
|--------------------------------|---|
| Suitable extinguishing media | : Use extinguishing media appropriate for surrounding fire. |
| Unsuitable extinguishing media | : None known |

5.2. Special hazards arising from the substance or mixture

| | |
|------------------|---|
| Fire hazard | : The product is not flammable |
| Explosion hazard | : Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. |
| Reactivity | : None known. |

5.3. Advice for fire-fighters

| | |
|--------------------------------|---|
| Firefighting instructions | : In case of fire: Evacuate all personnel from the danger area. Stop the leak and flow of gas before extinguishing fire, if safe to do so. If this is not possible, withdraw from area and allow fire to burn. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Let the fire burn. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Exercise caution when fighting any chemical fire. |
| Protection during firefighting | : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus, SCBA) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection. |

Section 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

| | |
|--|--|
| General measures | : Ensure adequate ventilation. |
| 6.1.1. For non -emergency personnel | |
| Protective equipment | : Wear protective equipment consistent with the site emergency plan. |
| Emergency procedures | : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind. |
| 6.1.12. For emergency responders | |
| Protective equipment | : Standard protective clothing and equipment (e.g., Self Contained Breathing |



Emergency procedures

Apparatus) for fire fighters. Equip cleanup crew with proper protection.
: Evacuate and limit access. Ventilate area. See information above "For non-emergency personnel".

6.2. Methods and material for containment and cleaning up

For containment

: Immediately contact emergency personnel. Try to stop gas leak if safe to do so.

Methods for cleaning up

: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safety handling

: Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Protect cylinders from physical damage; do not drag, roll, slide, or drop.

Hygiene measures

: Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures

: None known.

Storage conditions

: Do not expose to temperatures exceeding 52°C (125°F). Store locked up. Keep containers closed when not in use. Protect cylinder from physical damage. Store and use away from heat, sparks, open flame or any other ignition source. Store in well ventilated area.

Incompatible products

: None known.

Incompatible materials

: None known.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Nitrogen (7727-37-9)

| OSHA PEL | | Cal/OSHA PEL | NIOSH REL | ACGIH 2015 TLV |
|------------------------|------------------------|--|---|--|
| | | (as of 4/26/13) | (as of 4/26/13) | |
| ppm | mg/m ³ | 8-hour TWA (ST) STEL (C) Ceiling | up to 10-hour TWA (ST) STEL (C) Ceiling | 8-hour TWA (ST) STEL (C) Ceiling |
| <i>Not established</i> | <i>Not established</i> | <i>Not established</i> | <i>Not established</i> | Simple asphyxiant |

Chlorine (7782-50-5)

| OSHA PEL | | Cal/OSHA PEL | NIOSH REL | ACGIH 2015 TLV |
|-------------|---------------------------|--|---|--|
| | | (as of 4/26/13) | (as of 4/26/13) | |
| ppm | mg/m ³ | 8-hour TWA (ST) STEL (C) Ceiling | up to 10-hour TWA (ST) STEL (C) Ceiling | 8-hour TWA (ST) STEL (C) Ceiling |
| (C) 1 ppm | (C) 3 mg/m ³ | 0.5 ppm | (C) 0.5 ppm [15-min] | 0.5 ppm |



| | | | |
|-----------|-------------------------|------------|------------|
| (C) 1 ppm | (C) 5 mg/m ³ | (ST) 1 ppm | (ST) 1 ppm |
|-----------|-------------------------|------------|------------|

8.2. Appropriate engineering controls

Engineering measures/controls : Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly check for leakages. Ensure exposure is below occupational exposure limits. Oxygen detectors should be used when asphyxiating gases may me released. Consider work permit system e.g. for maintenance activities.

8.3. Individual protection measures

Hand protection : Wear working gloves when handling gas containers. 29CFR 1910.138: Hand Protection.
 Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
 Skin and body protection : Wear suitable protective clothing, e.g.-Lab coats, coveralls or flame resistant clothing.
 Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
 Thermal hazard protection : None necessary during normal and routine operations.
 Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
 Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Exposure controls

Appearance : Clear, colorless gas.
 Physical state : Gas
 Color : Slightly green
 Odor : Pungent
 Odor threshold : 0.06 ppm (Chlorine)
 pH : No data available
 Freezing point : No data available
 Flash point : No data available
 Evaporation rate : No data available
 Flammability (solid, gas) : Not Flammable - not combustible
 Upper flammability : Not Flammable - not combustible
 Lower flammability : Not Flammable - not combustible
 Relative density : No data available
 Solubility : No data available
 Partition coefficient : No data available
 Auto-ignition temperature : No data available
 Decomposition temperature : No data available
 Viscosity : Not applicable

Molecular weight (grams)

Boiling point

| | Chlorine | Nitrogen | | |
|--|-----------|----------|--|--|
| | 70.9 | 28.013 | | |
| | -33.97 °C | -196 °C | | |



| | | | | |
|-----------------------|----------------|----------------------------|--|--|
| Vapor pressure | 6384 hPa@20 °C | Above critical temperature | | |
| Vapor density at 20°C | 2.5 | 0.97 | | |
| Relative gas density | 2.98 @ 20 °C | 1.153 | | |
| Critical Temperature | 143.75 °C | -146.9 °C | | |

Section 10. STABILITY AND REACTIVITY

10.1. Reactivity

No reactivity hazard other than the effects described below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None under normal processing

10.4. Conditions to avoid

Reacts with water to form hydrochloric acid. Heat, flames and sparks.

10.5. Incompatible materials

Strong oxidizing agents. Combustible materials. Organic material.

10.6. Hazardous decomposition products

None known

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Nitrogen (7727-37-9)

LC50 inhalation rat (ppm) 410,000 ppm/ 4 hours

Chlorine (7782-50-5)

LC50 inhalation rat (ppm) 293 ppm / 1 hour

11.1. Information on routes of exposure

- Inhalation : May displace oxygen and cause rapid suffocation.
- Skin contact : Adverse effects not expected from this product
- Eye contact : May cause irritation.
- Ingestion : Ingestion is not considered a potential route of exposure

11.2. Symptoms related to physical, chemical and toxicological characteristics

Symptoms : No information available

11.3. Delayed and immediate effects

Skin corrosion/irritation : Contact with rapidly expanding gas may cause burns or frostbite. Chlorine is



| | |
|--|---|
| | extremely irritating to skin. Repeated contact with low concentrations may cause dermatitis. |
| Serious eye damage/irritation | : Contact with rapidly expanding gas may cause burns or frostbite. Chlorine is extremely irritating to the eyes. Repeated contact with low concentrations may cause dermatitis. |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| Developmental Toxicity | : Not classified |
| Specific target organ toxicity (single exposure) | : Respiratory system, eyes, skin |
| Specific target organ toxicity (repeated exposure) | : Respiratory system, eyes, skin |
| Aspiration hazard | : Not classified Not applicable for gases and gas-mixtures |

11.4. Carcinogenic effects

The components of this material are not found on the following lists: FEDERAL OSHA Z LIST, NTP AND IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Section 12. ECOLOGICAL INFORMATION

12.1. Aquatic Toxicity

Chlorine is highly toxic to all forms of aquatic life.

Chlorine (7782-50-5)

| Fish | Crustacean |
|--|-------------------------------------|
| 0.44: 96 h Lepomis macrochirus mg/L LC50 flow-through | 0.017: 48 h Daphnia magna mg/L LC50 |
| 0.014: 96 h Oncorhynchus mykiss mg/L LC50 flow-through | |
| 0.014: 96 h Oncorhynchus mykiss mg/L LC50 | |
| 0.104 - 0.168: 96 h Oncorhynchus mykiss mg/L LC50 static | |
| 0.08: 96 h Pimephales promelas mg/L LC50 flow-through | |
| 0.1: 96 h Pimephales promelas mg/L LC50 | |

12.2. Persistence and degradability

No information available for the product

12.3. Bioaccumulative potential

No information available for the product

12.4. Mobility in soil

No information available for the product



12.5. Other





No information available for the product

Section 13. DISPOSAL CONSIDERATIONS

13.1. Disposal methods

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14. TRANSPORTATION INFORMATION

| | US DOT | TDG | IMDG | IATA |
|-----------------------------------|---|---|--|---|
| UN # | UN 1956 | UN 1956 | UN 1956 | UN 1956 |
| Proper shipping name | Compressed gas, n.o.s. (Nitrogen, Chlorine) | Compressed gas, n.o.s. (Nitrogen, Chlorine) | Compressed gas, n.o.s. (Nitrogen, Chlorine) | Compressed gas, n.o.s. (Nitrogen, Chlorine) |
| Transport hazard class(es) | 2.2  | 2.2  | 2.2  | 2.2  |
| Packing group | - | - | - | - |
| Environment | No. | No. | No. | No. |

Section 15. REGULATORY INFORMATION

15.1. US Federal regulations

SARA 311/312 hazard categories

Acute Health : No
 Chronic Health : Yes
 Fire : No
 Pressure : Yes
 Reactive : No

SARA Title III Notifications and Information

Chlorine (7782-50-5)

SARA 313 - Threshold Values% 1

This product contains chemicals subject to reporting requirements of section 313 of the Emergency planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

SARA 311/312 Sudden Release of Pressure Hazard

CERCLA

Chlorine (7782-50-5)

Hazardous Substances RQs 10 lbs

CERCLA/SARA RQ 10 lbs

Reportable Quantity (RQ) 10 lbs

This material, as supplied, contains one or more substances regulated as hazardous substance under the Comprehensive



| | |
|--|---------|
| Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) | |
| Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) | |
| Chlorine (7782-50-5) | |
| Hazardous air pollutants (HAPs) | |
| VOC Chemicals | |
| Class 1 | |
| Class 2 | |
| This product contains the above substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act: | |
| Clean Water Act (CWA) | |
| Chlorine (7782-50-5) | |
| CWA - Reportable Quantities | 10 lbs |
| CWA - Toxic Pollutants | |
| CWA - Priority Pollutants | |
| CWA - Hazardous Substances | |
| This product contains the above substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 AND 40 cfr 122.42) | |
| Risk and Process Safety Management Programs | |
| Chlorine (7782-50-5) | |
| US - CAA (Clean Air Act) - Accidental Release Prevention - Toxic Substances | 2500 lb |
| US - CAA (Clean Air Act) - Accidental Release Prevention - Flammable Substances | |
| US - OSHA - Process Safety Management - Highly Hazardous Chemicals | 1500 lb |
| This material, as supplied, contains one or more regulated substances with specified thresholds under 40 CFR Part 68 or regulated as a highly hazardous chemical pursuant to the 29 CFR Part 1910.110 with specified thresholds. | |

15.2. US State regulations

| | |
|--|--|
| Nitrogen (007727-37-9) | |
| U.S. - Massachusetts - Right To Know List | |
| U.S. - Minnesota - Right To Know Hazardous Substance List | |
| U.S. - New Jersey - Right To Know Hazardous Substance List | |
| U.S. - Pennsylvania - RTK (Right To Know) List | |
| Chlorine (7782-50-5) | |
| U.S. - Massachusetts - Right To Know List | |
| U.S. - New Jersey - Right To Know Hazardous Substance List | |
| U.S. - Pennsylvania - RTK (Right To Know) List | |

Section 16. OTHER INFORMATION

Date of issue/Date of revision : New SDS 3/1/2015
Revision Note : Initial release



Hazardous Material Information System (USA)

| | |
|-------------------------|--|
| Hazard Scale | : 0 = Minimal/ 1 = Slight/ 2 = Moderate/ 3 = Serious/ 4 = Severe |
| Health | : 3 |
| Fire | : 0 |
| Physical hazards | : 3 |

Key/Legend

| | |
|---------|---|
| SARA | Superfund Amendments and Reauthorization Act |
| OSHA | Occupational Safety and Health Administration |
| DOT | Department of Transportation |
| TSCA | Toxic Substance Control Act |
| NTP | National Toxicology Program |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| PEL | Permissible Exposure Limit |
| STEL | Short Term Exposure Limit |
| TLV | Threshold Limit Value |
| TDG | Transportation of Dangerous Goods |
| CAS | Chemical Abstracts Service |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| TWA | Time Weighted Average |
| Prop | Proposition |
| ATE | Acute Toxicity Estimate |
| Repr. 2 | Reproductive toxicity Category 2 |

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose (s).