# SAFETY DATA SHEET

Nitrogen Dioxide

## Section 1. Identification

<table>
<thead>
<tr>
<th>GHS product identifier</th>
<th>: Nitrogen Dioxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>Other means of</td>
<td>Nitrogen oxide;</td>
</tr>
<tr>
<td>identification</td>
<td>Nitrogen dioxide</td>
</tr>
<tr>
<td></td>
<td>(dinitrogen tetroxide); Nitrogen oxide (NO2); Nitrogen peroxide; Dinitrogen tetroxide</td>
</tr>
<tr>
<td>Product use</td>
<td>Synthetic/Analytical chemistry.</td>
</tr>
<tr>
<td>Synonym</td>
<td>Nitrogen oxide; Nitrogen dioxide (dinitrogen tetroxide); Nitrogen oxide (NO2); Nitrogen peroxide; Dinitrogen tetroxide</td>
</tr>
<tr>
<td>SDS #</td>
<td>001041</td>
</tr>
<tr>
<td>Supplier’s details</td>
<td>Airgas USA, LLC and its affiliates</td>
</tr>
<tr>
<td></td>
<td>259 North Radnor-Chester Road</td>
</tr>
<tr>
<td></td>
<td>Suite 100</td>
</tr>
<tr>
<td></td>
<td>Radnor, PA 19087-5283</td>
</tr>
<tr>
<td></td>
<td>1-610-687-5253</td>
</tr>
<tr>
<td>Emergency telephone</td>
<td>1-866-734-3438</td>
</tr>
<tr>
<td>number (with hours of</td>
<td>operation)</td>
</tr>
</tbody>
</table>

## Section 2. Hazards identification

<table>
<thead>
<tr>
<th>OSHA/HCS status</th>
<th>This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification of the</td>
<td>OXIDIZING GASES - Category 1</td>
</tr>
<tr>
<td>substance or mixture</td>
<td>GASES UNDER PRESSURE - Compressed gas</td>
</tr>
<tr>
<td></td>
<td>ACUTE TOXICITY (inhalation) - Category 1</td>
</tr>
<tr>
<td></td>
<td>SKIN CORROSION/IRRITATION - Category 1</td>
</tr>
<tr>
<td></td>
<td>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GHS label elements</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard pictograms</td>
<td>![Pictograms]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard statements</td>
<td>May cause or intensify fire; oxidizer.</td>
</tr>
<tr>
<td></td>
<td>Contains gas under pressure; may explode if heated.</td>
</tr>
<tr>
<td></td>
<td>May cause frostbite.</td>
</tr>
<tr>
<td></td>
<td>Fatal if inhaled.</td>
</tr>
<tr>
<td></td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td></td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
</tbody>
</table>

| 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 product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service. |

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### Section 2. Hazards identification

**Prevention:**
- Wear protective gloves. Wear eye or face protection. Wear respiratory protection. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Use only outdoors or in a well-ventilated area. Do not breathe gas. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place.

**Response:**
- In case of fire: Stop leak if safe to do so. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

**Storage:**
- Store locked up. Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

**Disposal:**
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazards not otherwise classified:**
- In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

### Section 3. Composition/information on ingredients

**Substance/mixture:** Substance

**Chemical name:** nitrogen dioxide

**Other means of identification:** Nitrogen oxide; Nitrogen dioxide (dinitrogen tetroxide); Nitrogen oxide (NO2); Nitrogen peroxide; Dinitrogen tetroxide

**CAS number/other identifiers**

- **CAS number:** 10102-44-0
- **Product code:** 001041

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrogen dioxide</td>
<td>100</td>
<td>10102-44-0</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

**Occupational exposure limits, if available, are listed in Section 8.**

### Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact:** Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

**Inhalation:** Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed

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**Date of previous issue:** 5/20/2015

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Section 4. First aid measures

Skin contact:
- Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion:
- As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact:
- Causes serious eye damage. Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation:
- Fatal if inhaled. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact:
- Causes severe burns. Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite:
- Try to warm up the frozen tissues and seek medical attention.

Ingestion:
- May cause burns to mouth, throat and stomach. As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact:
- Adverse symptoms may include the following:
  - pain
  - watering
  - redness

Inhalation:
- No specific data.

Skin contact:
- Adverse symptoms may include the following:
  - pain or irritation
  - redness
  - blistering may occur

Ingestion:
- Adverse symptoms may include the following:
  - stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:
- In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments:
- No specific treatment.

Protection of first-aiders:
- No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:
- Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:
- None known.
Section 5. Fire-fighting measures

Specific hazards arising from the chemical: Contains gas under pressure. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products: Decomposition products may include the following materials: nitrogen oxides.

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

Small spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Do not breathe gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities
Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Separate from acids, alkalies, reducing agents and combustibles. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrogen dioxide</td>
<td>ACGIH TLV (United States, 6/2013). STEL: 9.4 mg/m³ 15 minutes. STEL: 5 ppm 15 minutes. TWA: 5.6 mg/m³ 8 hours. TWA: 0.2 ppm 8 hours. NIOSH REL (United States, 4/2013). STEL: 1.8 mg/m³ 15 minutes. STEL: 1 ppm 15 minutes. OSHA PEL (United States, 2/2013). CEIL: 9 mg/m³ CEIL: 5 ppm OSHA PEL 1989 (United States, 3/1989). STEL: 1.8 mg/m³ 15 minutes. STEL: 1 ppm 15 minutes.</td>
</tr>
</tbody>
</table>

Appropriate engineering controls
Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection
Section 8. Exposure controls/personal protection

**Hand protection**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection**: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Other skin protection**: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**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. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

**Appearance**

**Physical state** : Gas. [gaseous]


**Molecular weight** : 46.01 g/mole

**Molecular formula** : N-O2

**Boiling/condensation point** : 21.2°C (70.2°F)

**Melting/freezing point** : -11.2°C (11.8°F)

**Critical temperature** : 157.8°C (316°F)

**Odor** : Pungent.

**Odor threshold** : Not available.

**pH** : Not available.

**Flash point** : [Product does not sustain combustion.]

**Burning time** : Not applicable.

**Burning rate** : Not applicable.

**Evaporation rate** : Not available.

**Flammability (solid, gas)** : Not available.

**Lower and upper explosive (flammable) limits** : Not available.

**Vapor pressure** : 14.7 (psia)

**Vapor density** : 1.58 (Air = 1)

**Specific Volume (ft \(^3\)/lb)** : 4.902

**Gas Density (lb/ft \(^3\))** : 0.204

**Relative density** : Not applicable.

**Solubility** : Not available.

**Solubility in water** : Not available.

**Partition coefficient: n-octanol/water** : Not available.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.
Section 9. Physical and chemical properties

- **SADT**: Not available.
- **Viscosity**: Not applicable.

Section 10. Stability and reactivity

- **Reactivity**: No specific test data related to reactivity available for this product or its ingredients.
- **Chemical stability**: The product is stable.
- **Possibility of hazardous reactions**: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials. Reactions may include the following: risk of causing fire.
- **Conditions to avoid**: No specific data.
- **Incompatibility with various substances**: Extremely reactive or incompatible with the following materials: reducing materials, combustible materials and organic materials. Highly reactive or incompatible with the following materials: alcalis and moisture.
- **Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- **Hazardous polymerization**: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

**Information on toxicological effects**

- **Acute toxicity**
<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrogen dioxide</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>115 ppm</td>
<td>1 hours</td>
</tr>
</tbody>
</table>

- **Irritation/Corrosion**: Not available.
- **Sensitization**: Not available.
- **Mutagenicity**: Not available.
- **Carcinogenicity**: Not available.
- **Reproductive toxicity**: Not available.
- **Teratogenicity**: Not available.
- **Specific target organ toxicity (single exposure)**: Not available.

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Section 11. Toxicological information

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on the likely routes of exposure

Potential acute health effects

Eye contact
Causes serious eye damage. Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation
Fatal if inhaled. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact
Causes severe burns. Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion
May cause burns to mouth, throat and stomach. As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact
Adverse symptoms may include the following:
- pain
- watering
- redness

Inhalation
No specific data.

Skin contact
Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur

Ingestion
Adverse symptoms may include the following:
- stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects
Not available.

Potential delayed effects
Not available.

Long term exposure

Potential immediate effects
Not available.

Potential delayed effects
Not available.

Potential chronic health effects
Not available.

General
No known significant effects or critical hazards.

Carcinogenicity
No known significant effects or critical hazards.

Mutagenicity
No known significant effects or critical hazards.

Teratogenicity
No known significant effects or critical hazards.

Developmental effects
No known significant effects or critical hazards.

Fertility effects
No known significant effects or critical hazards.
Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates
Not available.

Section 12. Ecological information

Toxicity
Not available.

Persistence and degradability
Not available.

Bioaccumulative potential
Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc})
Not available.

Other adverse effects
No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods
The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Acute hazardous waste "P" List

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS #</th>
<th>Status</th>
<th>Reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen dioxide; Nitrogen oxide NO2</td>
<td>10102-44-0</td>
<td>Listed</td>
<td>P078</td>
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</table>

Section 14. Transport information
## Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT</th>
<th>TDG</th>
<th>Mexico</th>
<th>IMDG</th>
<th>IATA</th>
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<tbody>
<tr>
<td>UN1067</td>
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<td>UN1067</td>
<td>UN1067</td>
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</tr>
</tbody>
</table>

### UN proper shipping name

| DINITROGEN TETROXIDE | DINITROGEN TETROXIDE | DINITROGEN TETROXIDE | DINITROGEN TETROXIDE | DINITROGEN TETROXIDE |

### Transport hazard class(es)

<table>
<thead>
<tr>
<th>UN1067</th>
<th>UN1067</th>
<th>UN1067</th>
<th>UN1067</th>
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<tr>
<td>2.3 (5.1, 8)</td>
<td>2.3 (5.1, 8)</td>
<td>2.3 (5.1, 8)</td>
<td>2.3 (5.1, 8)</td>
<td>2.3 (5.1, 8)</td>
</tr>
</tbody>
</table>

### Environment


### Additional information

- **Inhalation hazard zone A**
- **Reportable quantity**
  - 10 lbs / 4.54 kg
  - Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- **Limited quantity**
  - Yes.
- **Packaging instruction**
  - Passenger aircraft
    - Quantity limitation: Forbidden.
  - Cargo aircraft
    - Quantity limitation: Forbidden.
  - **Special provisions**
    - 1, B7, B9, B14, B45, B46, B61, B66, B67, B77
  - **Explosive Limit and Limited Quantity Index**
    - 0
  - **ERAP Index**
    - 0
  - **Passenger Carrying Ship Index**
    - Forbidden
  - **Passenger Carrying Road or Rail Index**
    - Forbidden
  - **Special provisions**
    - 38

### Special precautions for user

- **Transport within user's premises**: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- **Not available.**

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**“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”**

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Section 15. Regulatory information

U.S. Federal regulations:
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): This material is listed or exempted.
- Clean Water Act (CWA) 311: nitrogen dioxide

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
DEA List I Chemicals (Precursor Chemicals): Not listed
DEA List II Chemicals (Essential Chemicals): Not listed
SARA 302/304
Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
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</thead>
<tbody>
<tr>
<td>nitrogen dioxide</td>
<td>100</td>
<td>Yes.</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

SARA 304 RQ: 10 lbs / 4.5 kg
SARA 311/312
Classification: Sudden release of pressure
Immediate (acute) health hazard

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrogen dioxide</td>
<td>100</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>

State regulations
- Massachusetts: This material is listed.
- New York: This material is listed.
- New Jersey: This material is listed.
- Pennsylvania: This material is listed.
- Canada inventory: This material is listed or exempted.

International regulations
- Australia inventory (AICS): This material is listed or exempted.
- China inventory (IECSC): This material is listed or exempted.
- Japan inventory: This material is listed or exempted.
- Korea inventory: This material is listed or exempted.
- Malaysia inventory (EHS Register): Not determined.
- New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
- Philippines inventory (PICCS): This material is listed or exempted.
- Taiwan inventory (CSNN): Not determined.

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Section 15. Regulatory information

**Chemical Weapons Convention List Schedule I Chemicals**
- Not listed

**Chemical Weapons Convention List Schedule II Chemicals**
- Not listed

**Chemical Weapons Convention List Schedule III Chemicals**
- Not listed

**Canada**

**WHMIS (Canada)**
- Class A: Compressed gas.
- Class C: Oxidizing material.
- Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
- Class D-2B: Material causing other toxic effects (Toxic).
- Class E: Corrosive material

**CEPA Toxic substances**: This material is listed.
**Canadian ARET**: This material is not listed.
**Canadian NPRI**: This material is listed.
**Alberta Designated Substances**: This material is not listed.
**Ontario Designated Substances**: This material is not listed.
**Quebec Designated Substances**: This material is not listed.

Section 16. Other information

**Canada Label requirements**
- Class A: Compressed gas.
- Class C: Oxidizing material.
- Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
- Class D-2B: Material causing other toxic effects (Toxic).
- Class E: Corrosive material

**Hazardous Material Information System (U.S.A.)**

<table>
<thead>
<tr>
<th>Health</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>1</td>
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</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)**

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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

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| Date of previous issue | 5/20/2015. |
| Version | 0.04 |

Key to abbreviations

ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
UN = United Nations  
ACGIH – American Conference of Governmental Industrial Hygienists  
AIHA – American Industrial Hygiene Association  
CAS – Chemical Abstract Services  
CEPA – Canadian Environmental Protection Act  
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)  
CPR – Controlled Products Regulations  
DSL – Domestic Substances List  
GWP – Global Warming Potential  
IARC – International Agency for Research on Cancer  
ICAO – International Civil Aviation Organisation  
Inh – Inhalation  
LC – Lethal concentration  
LD – Lethal dosage  
NDSL – Non-Domestic Substances List  
NIOSH – National Institute for Occupational Safety and Health  
TDG – Canadian Transportation of Dangerous Goods Act and Regulations  
TLV – Threshold Limit Value  
TSCA – Toxic Substances Control Act  
WEEL – Workplace Environmental Exposure Level  
WHMIS – Canadian Workplace Hazardous Material Information System

References  
Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.