**Material Safety Data Sheets (MSDS)**

IDENTIFICATION

**NITROUS OXIDE**

Chemical formula:

Product Use Description: Synthetic/Analytical chemistry

**CHEMICAL AND COMMON NAMES**

Synonyms: Nitrogen oxide (N2O); Dinitrogen monoxide; Dinitrogen oxide; Laughing

 gas; N2O; Factitious air; Hyponitous acid anhydride; Nitrogen oxide; UN

 1070; UN 2201; Nitrogen Monoxide; Nitral; Diazyne 1-oxide; NITROUS

 OXIDE, REFRIGERATED LIQUID

PHYSICAL & CHEMICAL PROPERTIES

Physical State: Gas Color: colorless gas (liquid under pressure)

Odor: odorless Taste: N/A

Molecular Weight: 42.02 Molecular Formula: N2-O

Boiling Point: -88C, -126.4F Freezing Point: -91C, -131.8F

Decompression Point: N/A Vapor Pressure: 745 (psig)

Vapor Density (air=1): 1.53 Specific Gravity: N/A

Density: 0.115 Water Solubility: N/A

PH: N/A Volatility: critical temperature 97.9F

Odor Threshold: N/A Evaporation Rate: N/A

Viscosity: N/A Coefficient of Water/Oil Distribution: N/A

Solvent Solubility: N/A

COMPOSITION/INFORMATION ON INGREDIENTS

Components:Nitrous Oxide

CAS Number: 10024-97-2

Concentration (Volume): 100%

HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH = 0 FIRE = 0 REACTIVITY = 2

Do not puncture. May cause damage to the following organs: the reproductive system, upper respiratory tract, central nervous system (CNS). Acts as a simple asphyxiant. Ingestion is not a normal route of exposure for gases. Contact with cryogenic liquid can cause frostbite and cryogenic

burns.

FIRST AID

For inhalation, skin and/or eye contact (liquid):

**Breathing:** Inhalation. Provide fresh air, or give artificial respiration if not breathing, mouth to mouth preferred. If breathing is difficult, give oxygen. Get immediate medical attention.

**Skin:** Frostbite. Rinse with room temperature water, remove contaminated clothing and shoes. Wash clothing and clean shoes before reuse. Refer for medical attention.
**Eyes:** Frostbite. Rinse with water lukewarm water for at least 15 minutes, then seek emergency medical attention.

FIRE FIGHTING MEASURES

Extremely flammable in the presence of the following materials or conditions: reducing materials and combustible materials. Use an extinguishing agent suitable for the surrounding fire. Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk. Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

ACCIDENTAL RELEASE MEASURES

Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment. Eliminate all ignition sources if safe to do so. Do not touch or walk through spilled material. Shut off gas supply if this can be one safely. Isolate area until gas has dispersed. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

HANDLING AND STORAGE

High pressure gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Store in tightly-closed container. Avoid contact with combustible materials. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement.

Never allow any unprotected part of the body to touch un-insulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures and will easily fracture.

Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperature should not exceed 52C, 125f.

 EXPOSURE CONTROLS/PERSONAL PROTECTION

**VENTILATION**: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION**: Safety glasses should be worn.

**RESPIRATORY PROTECTION:** Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard.

**SKIN PROTECTION:** No special equipment is required. Gloves are recommended for cylinder handling.

**CLOTHING**: Protective clothing is not required.

STABILITY AND REACTIVITY

Stable at normal temperatures and pressure.

Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Will not polymerize.

TOXICOLOGICAL INFORMATION

Simple asphyxiate.

ECOLOGICAL INFORMATION

Fish, invertebrate, algal toxicity: No data available.

Biodegradation: No data available.

DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

TRANSPOSRT INFORMATION

Proper Shipping name: Nitrous Oxide

U.S. DOT CFR

ID NUMBER: UN1070

HAZARD CLASS: 2.2

LABELING REQUIREMENTS: 2.2

REGULATORY INFORMATION

**U.S. REGULATIONS**

CERCLA Sections 102a/103 Hazardous Substances (40 CFR 302.4): Not regulated

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR 355 Subpart B): Not regulated

SARA Title III Section 304 Extremely Hazardous Substances (40 CFR 370 Subparts B and C): dinitrogen oxide: Fire Hazard, Sudden release of pressure, delayed (chronic) health hazard

SARA Title III Section 313 (40 CFR 372.65): dinitrogen oxide

OSHA Process Safety (29 CFR 1910.119): Not regulated

**STATE REGULATIONS**

No products were found/this material is not listed.

**CANADIAN REGULATIONS**

WHMIS Classification: This material is not listed

**NATIONAL INVENTORY STATUS**

U.S. Inventory (TSCA): Listed on inventory

TSCA 12(b) Export Notification: Not listed

Canada inventory (DSL/NDSL): Listed on inventory