

Precision Gas Products Inc.

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Sulfur Dioxide in Nitrogen less than 5000 ppm

MATERIAL SAFETY DATA SHEET

Identification

Revision Date 01-01-15

Chemical Family: Gas Mixture

Chemical formula: SO₂ in N₂

CAS Number:

SO₂ = 7446-09-5

N₂ = 7727-37-9

MSDS Identification Code/ Number: MSDS 109N

Health Hazard Information

- Time Weighted Average Exposure Limit: Sulfur Dioxide has a TWA of 2 Molar PPM and an STEL of 5 Molar PPM with an A4 (not classifiable as a human carcinogen) carcinogen rating; nitrogen is a simple asphyxiant (ACGIH 1998). OSHA (1995) lists a PEL of 5 Molar PPM for Sulfur Dioxide; with no lists of nitrogen. Oxygen levels should be maintained at greater than 18 Molar percent at normal atmospheric pressure.
- Symptoms of Exposure: Effects of exposure to high concentrations so as to displace the oxygen in air necessary for life may include any, all or none of the following:
 - ◆ Loss of balance or dizziness
 - ◆ Tightness in the frontal area of the forehead
 - ◆ Tingling of the tongue, fingertips or toes
 - ◆ Weakened speech leading to the inability to utter sounds
 - ◆ Rapid reduction in the ability to perform movements
 - ◆ Reduced consciousness of the surroundings
 - ◆ Loss of tactile sensations
 - ◆ Heightened mental activity

It should be recognized that it is possible that none of the above symptoms may occur in gas asphyxia so that there are no definite warning symptoms.

- Toxicological Properties: The amount of Sulfur Dioxide in the mixtures should not present a toxicological problem. These mixtures are nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life. Neither Sulfur Dioxide nor nitrogen are listed in the IARC, NPT or by OSHA as a carcinogen or potential carcinogen.
- Recommended First Aid Treatment: *Prompt medical attention is mandatory in all cases of overexposure to nitrogen. Rescue personnel should be equipped with self – contained breathing apparatus.*

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given mouth – to – mouth resuscitation and supplementary oxygen. Medical assistance should be sought immediately.

Physical Data

Boiling Point

SO₂ = 14.0°F (-10.0°C)

N₂ = -320.5°F (-195.8°C)

Vapor Pressure @ 70°F (21.1°C)

SO₂ = 49.1 psia (339 kPa)

N₂ = Above the critical temperature

Solubility in Water

SO₂ = Soluble

N₂ = Negligible

Evaporating Rate

N/A (Gas)

Appearance and Odor

Colorless gas with slight pungent odor.

Liquid Density at Boiling point

SO₂ = 91.1 lb/ft³ (1460 kg/m³)

N₂ = 50.46 lb/ft³ (808.3 kg/m³)

Gas Density at 70°F 1 ATM

SO₂ = .169 lb/ft³ (2.71 kg/m³)

N₂ = .0725 lb/ft³ (1.161 kg/m³)

Freezing Point

SO₂ = -103.9°F (-75.5°C)

N₂ = -345.9°F (-209.9°C)

Specific gravity (AIR = 1)

@ 70°F (21.1°C) = 0.97

Fire and Explosion Data

Flash Point (method used)

N/A

Auto Ignition Temperature

N/A

Flammable Limits % By Volume

N/A

Extinguishing Media

Nonflammable Gas

Electrical Classification

Nonhazardous

Special Fire Fighting Procedures

If cylinders are involved in a fire, safely relocate or keep cool with water spray.

Unusual Fire and Explosion Hazards

N/A

Reactivity Data

Stability - Stable

Incompatibility (Materials to avoid) – None

Hazardous Decomposition Products – None

Hazardous polymerization - Will no occur

Accidental Release Measures

Steps to be taken in Case Material is Released or Spilled: Evacuate all personnel from affected area. Use appropriate protective equipment.

Disposal Consideration

Waste Disposal Method: Do not attempt to dispose of waste or unused quantities. Return in shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to Precision Gas Products for proper disposal.

Exposure Controls/Personal Precaution

- Respiratory Precaution: Positive pressure air line with mask or self – contained breathing apparatus should be available for emergency use.
- Ventilation: To prevent accumulation of high concentrations so as to reduce the oxygen level in the air too less than 18 molar percent.

Protective Gloves: Any material

Eye Protection: Safety goggles or glasses

Other Protective Equipment: Safety shoes

Transport Information

Proper Shipping Name: Compressed Gas, N.O.S., (Nitrogen, Sulfur Dioxide)

Hazardous Class: 2.2

CT (DOT) Identification Number: UN 1956

CT (DOT) Shipping Label: Nonflammable gas

Handling and Storage

Use only in well – ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder to lower pressure (<3,000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge line to prevent hazardous back flow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well – ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should segregated. Use a “first in – first out” inventory system to prevent full cylinders being stored for excessive periods of time. Nitrogen in noncorrosive and may be used with any common structural material.

Other Information

Compressed gas cylinders should not be refilled except by qualified procedures of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).