

Issue date March 1, 2015  
Reviewed date November 1, 2023

## Safety Data Sheet

**SDS ID# 5040**

### Section 1. IDENTIFICATION

#### 1.1. Product identifier

Product form : Mixture  
Product name : Sulfur Dioxide (0.0001%-0.02%) in Air (Oxygen 20.9% bal. 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  
21913 Cobalt Ave.  
Caldwell, Idaho 83605  
Telephone 1-208-585-5829 or Toll free 1-800-552-5003  
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

#### 2.2. Label elements

##### Hazard pictograms



Signal word : WARNING

Hazard statements : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED  
: CGA-HG24 - MAY SUPPORT COMBUSTION  
: 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  
: 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	76.48 - 80.5099
Oxygen	(CAS No) 7782-44-7	19.49 - 23.5
Sulfur dioxide	(CAS No) 7446-09-5	0.0001 - 0.02

## 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 : Adverse effects not expected from this product.
- 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

Symptoms/injuries upon intravenous administration	: Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
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.
<b>6.1.1. For non-emergency personnel</b>	
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.
<b>6.1.12. For emergency responders</b>	
Protective equipment	: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
Emergency procedures	: Evacuate and limit access. Ventilate area. See information above "For non-emergency personnel".

**6.2. Methods and material for containment and cleaning up**

## Sulfur Dioxide (0.0001%-0.02%) in Air (Oxygen 20.9% bal. Nitrogen)

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
ppm	mg/m <sup>3</sup>	(as of 4/26/13)	(as of 4/26/13)	
		8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	8-hour TWA (ST) STEL (C) Ceiling
Not established	Not established	Not established	Not established	Simple asphyxiant

#### Oxygen (7782-44-7)

OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
ppm	mg/m <sup>3</sup>	(as of 4/26/13)	(as of 4/26/13)	
		8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	8-hour TWA (ST) STEL (C) Ceiling

There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.

#### Sulfur Dioxide (7446-09-5)

OSHA PEL	Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV

## Sulfur Dioxide (0.0001%-0.02%) in Air (Oxygen 20.9% bal. Nitrogen)

OSHA PEL		Cal/OSHA PEL	MOSH REL	ACGIH 2015 TLV
		(as of 4/26/13)	(as of 4/26/13)	
ppm	mg/m <sup>3</sup>	8-hour TWA (ST) STEL ( C ) Ceiling	up to 10-hour TWA (ST) STEL ( C ) Ceiling IDHL	8-hour TWA (ST) STEL ( C ) Ceiling
5 ppm	13 mg/m <sup>3</sup>	2 ppm (ST) 5 ppm	2 ppm (ST) 5 ppm	(ST) 0.25 ppm
			IDHL 100 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 : Colorless  
 Odor : Odorless to pungent  
 Odor threshold : 0.1 - 3 ppm (Sulfur Dioxide)  
 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

## Sulfur Dioxide (0.0001%-0.02%) in Air (Oxygen 20.9% bal. Nitrogen)

Auto-ignition temperature : No data available  
 Decomposition temperature : No data available  
 Viscosity : Not applicable

	Sulfur Dioxide	Oxygen	Nitrogen	
Molecular weight (grams)	64.06	32.00	28.013	
Boiling point	-10 °C	-182.9 °C	-196 °C	
Vapor pressure	3200 hPa@20 °C	Above critical temperature	Above critical temperature	
Vapor density at 20°C	2.26	1.11	0.97	
Relative gas density	2.697 @ 20 °C	1.331	1.153	
Critical Temperature	157.4 °C	-118.6 °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

Sulfur dioxide will react with water or moist air to form sulfurous acid.

#### 10.4. Conditions to avoid

Contact with incompatible materials.

#### 10.5. Incompatible materials

#### 10.6. Hazardous decomposition products

Sulfur dioxide will react with water or moist air to form sulfurous acid.

### Section 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Nitrogen (7727-37-9)

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

##### Oxygen (7782-44-7)

LC50 inhalation rat (ppm) 400,000 ppm/4 hours

##### Sulfur Dioxide (7446-09-5)

LC<sub>LO</sub> inhalation rat (ppm) 993 ppm / 20 minutes

LC<sub>LO</sub> inhalation rat (ppm) 611 ppm / 5 hours

EN (English US)

### 11.1. Information on routes of exposure

Inhalation	: Adverse effects not expected from this product
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
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### 11.3. Delayed and immediate effects

Skin corrosion/irritation	: Contact with rapidly expanding gas may cause burns or frostbite.
Serious eye damage/irritation	: Contact with rapidly expanding gas may cause burns or frostbite. Sulfur dioxide can cause irritation at relatively low levels (1-5ppm); however workers may become acclimated even to initially unbearable concentrations (25 ppm). Pure sulfur dioxide may damage the skin, eyes, and mucous membranes.
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

No information available for the product

### 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
<b>UN #</b>	UN 1956	UN 1956	UN 1956	UN 1956
<b>Proper shipping name</b>	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)	Compressed gas, n.o.s. (Nitrogen, Oxygen)
<b>Transport hazard class(es)</b>	2.2 	2.2 	2.2 	2.2 
<b>Packing group</b>	-	-	-	-
<b>Environment</b>	No.	No.	No.	No.

**Section 15. REGULATORY INFORMATION**

**15.1. US Federal regulations**

**SARA 311/312 hazard categories**

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

SARA Title III Notifications and Information: None known

This product does not contain toxic 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
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**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

**Oxygen (007782-44-7)**





## Sulfur Dioxide (0.0001%-0.02%) in Air (Oxygen 20.9% bal. Nitrogen)

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
<b>Sulfur dioxide (7446-9-5)</b>
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** 11/1/2023

**Revision Note**

#### Hazardous Material Information System (USA)

Hazard Scale	: 0 = Minimal/ 1 = Slight/ 2 = Moderate/ 3 = Serious/ 4 = Severe
<b>Health</b>	: 1
<b>Fire</b>	: 0
<b>Physical hazards</b>	: 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

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