



# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/20/2014

Version: 1.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen  
Product code : SG-2003-00443

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

Use of the substance/mixture : Test gas/Calibration gas.

#### 1.3. Details of the supplier of the safety data sheet

Air Liquide America Specialty Gases  
6141 Easton Rd  
Plumsteadville, PA 18949 - USA  
T 1.800.217.2688  
[www.airliquide.com](http://www.airliquide.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 (GHS-US)

Compressed gas H280

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS04

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H280 - Contains gas under pressure; may explode if heated  
CGA-HG24 - Supports combustion.

Precautionary statements (GHS-US) :

P202 - Do not handle until all safety precautions have been read and understood  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves, protective clothing, eye protection, face protection  
P403 - Store in a well-ventilated place  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)  
CGA-PG05 - Use a back flow preventive device in the piping  
CGA-PG06 - Close valve after each use and when empty  
CGA-PG10 - Use only with equipment rated for cylinder pressure  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG21 - Open valve slowly

#### 2.3. Other hazards

Other hazards not contributing to the classification : None.

#### 2.4. Unknown acute toxicity (GHS-US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 3.2. Mixture

| Name            | Product identifier | %                 | Classification (GHS-US)   |
|-----------------|--------------------|-------------------|---|
| Nitrogen        | (CAS No)7727-37-9  | 75.5001 - 80.4999 | Compressed gas, H280  |
| Oxygen          | (CAS No)7782-44-7  | 19.5 - 23.5       | Ox. Gas 1, H270<br>Compressed gas, H280   |
| Sulphur dioxide | (CAS No)7446-09-5  | 0.0001 - 0.9999   | Liquefied gas, H280<br>Acute Tox. 3 (Inhalation:gas), H331<br>Skin Corr. 1B, H314<br>Eye Dam. 1, H318 |

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures after inhalation : Adverse effects not expected from this product.  
First-aid measures after skin contact : Adverse effects not expected from this product.  
First-aid measures after eye contact : Adverse effects not expected from this product.  
First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : Adverse effects not expected from this product.  
Symptoms/injuries after inhalation : Adverse effects not expected from this product.  
Symptoms/injuries after skin contact : Adverse effects not expected from this product.  
Symptoms/injuries after eye contact : Adverse effects not expected from this product.  
Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.  
Symptoms/injuries upon intravenous administration : Not known.  
Chronic symptoms : None known.

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

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.  
Unsuitable extinguishing media : Do not use water jet to extinguish.

### 5.2. Special hazards arising from the substance or mixture

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

### 5.3. Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.  
Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters.

## 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.

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 6.1.2. For emergency responders

- 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.

### 6.2. Environmental precautions

Try to stop release if safe to do so.

### 6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if safe to do so.
- Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

### 6.4. Reference to other sections

See also Sections 8 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Protect cylinder from physical damage.
- Incompatible products : None known.
- Incompatible materials : None known.

### 7.3. Specific end use(s)

Test gas/Calibration gas.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| Sulphur dioxide (7446-09-5) |                                     |                      |
|-----------------------------|-------------------------------------|----------------------|
| USA ACGIH                   | ACGIH STEL (ppm)                    | 0.25 ppm             |
| USA OSHA                    | OSHA PEL (TWA) (mg/m <sup>3</sup> ) | 13 mg/m <sup>3</sup> |
| USA OSHA                    | OSHA PEL (TWA) (ppm)                | 5 ppm                |

### Nitrogen (7727-37-9)

### 8.2. Exposure controls

- Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits. Consider work permit system e.g. for maintenance activities.
- 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 : None necessary during normal and routine operations.
- 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.

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

|   |  |
|---|--|
| Physical state                              | : Gas  |
| Appearance                                  | : Clear, colorless gas.  |
| Color                                       | : Colorless  |
| Odor  | : odorless   |
| Odor threshold                              | : No data available  |
| pH  | : No data available  |
| Relative evaporation rate (butyl acetate=1) | : No data available  |
| Melting point                               | : No data available  |
| Freezing point                              | : No data available  |
| Boiling point                               | : No data available  |
| Flash point                                 | : No data available  |
| Auto-ignition temperature                   | : No data available  |
| Decomposition temperature                   | : No data available  |
| Flammability (solid, gas)                   | : No data available  |
| Vapor pressure                              | : No data available  |
| Relative vapor density at 20 °C             | : No data available  |
| Relative density                            | : No data available  |
| Relative gas density                        | : Heavier than or similar to air   |
| Solubility                                  | : Water: Solubility in water of component(s) of the mixture :<br>• : • : 39 mg/l • : 20 mg/l |
| Log Pow                                     | : No data available  |
| Log Kow                                     | : No data available  |
| Viscosity, kinematic                        | : No data available  |
| Viscosity, dynamic                          | : No data available  |
| Explosive properties                        | : Not applicable - not flammable.  |
| Oxidizing properties                        | : None.  |
| Explosive limits                            | : No data available  |

#### 9.2. Other information

Additional information : None.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

None known.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Can form explosive mixtures with flammable materials.

#### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

#### 10.5. Incompatible materials

Flammable materials.

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Not classified

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| <b>Sulphur dioxide (7446-09-5)</b> |                       |
|------------------------------------|-----------------------|
| LC50 inhalation rat (ppm)          | 1260 ppm/4h           |
| ATE US (gases)                     | 1260.00000000 ppmV/4h |

| <b>Oxygen (7782-44-7)</b> |               |
|---------------------------|---------------|
| LC50 inhalation rat (ppm) | 400000 ppm/4h |

| <b>Nitrogen (7727-37-9)</b> |               |
|-----------------------------|---------------|
| LC50 inhalation rat (ppm)   | 410000 ppm/4h |

|                                   |                  |
|-----------------------------------|------------------|
| Skin corrosion/irritation         | : Not classified |
| Serious eye damage/irritation     | : Not classified |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity            | : Not classified |
| Carcinogenicity                   | : Not classified |

| <b>Sulphur dioxide (7446-09-5)</b> |                      |
|------------------------------------|----------------------|
| IARC group                         | 3 - Not classifiable |

|  |                  |
|--|------------------|
| Reproductive toxicity                            | : Not classified |
| Specific target organ toxicity (single exposure) | : Not classified |

|  |                  |
|--|------------------|
| Specific target organ toxicity (repeated exposure) | : Not classified |
|--|------------------|

|   |  |
|---|--|
| Aspiration hazard                                 | : Not classified   |
| Symptoms/injuries after inhalation                | : Adverse effects not expected from this product.            |
| Symptoms/injuries after skin contact              | : Adverse effects not expected from this product.            |
| Symptoms/injuries after eye contact               | : Adverse effects not expected from this product.            |
| Symptoms/injuries after ingestion                 | : Ingestion is not considered a potential route of exposure. |
| Symptoms/injuries upon intravenous administration | : Not known.   |
| Chronic symptoms                                  | : None known.  |

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

| <b>Sulphur dioxide (7446-09-5)</b> |                                     |
|------------------------------------|-------------------------------------|
| Persistence and degradability      | Not applicable for inorganic gases. |

| <b>Oxygen (7782-44-7)</b>     |  |
|-------------------------------|--|
| Persistence and degradability | No ecological damage caused by this product. |

| <b>Nitrogen (7727-37-9)</b>   |  |
|-------------------------------|--|
| Persistence and degradability | No ecological damage caused by this product. |

### 12.3. Bioaccumulative potential

| <b>Sulphur dioxide (7446-09-5)</b> |                                     |
|------------------------------------|-------------------------------------|
| BCF fish 1                         | (no bioaccumulation expected)       |
| Log Pow                            | Not applicable for inorganic gases. |
| Bioaccumulative potential          | No data available.                  |

| <b>Oxygen (7782-44-7)</b> |  |
|---------------------------|--|
| Log Pow                   | Not applicable for inorganic gases.          |
| Bioaccumulative potential | No ecological damage caused by this product. |

| <b>Nitrogen (7727-37-9)</b> |                                     |
|-----------------------------|-------------------------------------|
| Log Pow                     | Not applicable for inorganic gases. |

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Nitrogen (7727-37-9)      |  |
|---------------------------|--|
| Bioaccumulative potential | No ecological damage caused by this product. |

### 12.4. Mobility in soil

| Sulphur dioxide (7446-09-5) |   |
|-----------------------------|---|
| Ecology - soil              | Because of its high volatility, the product is unlikely to cause ground or water pollution. |

| Oxygen (7782-44-7) |  |
|--------------------|--|
| Ecology - soil     | No ecological damage caused by this product. |

| Nitrogen (7727-37-9) |  |
|----------------------|--|
| Ecology - soil       | No ecological damage caused by this product. |

### 12.5. Other adverse effects

- Effect on ozone layer : No additional information available
- Effect on the global warming : No known ecological damage caused by this product.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

- Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.
- Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at [www.cganet.com](http://www.cganet.com) for more guidance on suitable disposal methods.
- Additional information : None.

## SECTION 14: Transport information

- In accordance with DOT
- Transport document description : UN1956 Compressed gas, n.o.s., 2.2
- UN-No.(DOT) : 1956
- DOT NA no. : UN1956
- DOT Proper Shipping Name : Compressed gas, n.o.s.
- Department of Transportation (DOT) Hazard Classes : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
- Hazard labels (DOT) : 2.2 - Non-flammable gas



- DOT Symbols : G - Identifies PSN requiring a technical name
- DOT Packaging Exceptions (49 CFR 173.xxx) : 306;307
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305
- DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg
- DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Additional information

- Other information : No supplementary information available.

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### ADR

Transport document description : UN 1956, 2.2, (E)  
Class (ADR) : 2 - Gases  
Hazard identification number (Kemler No.) : 20  
Classification code (ADR) : 1A  
Danger labels (ADR) : 2.2 - Non-flammable compressed gas



Orange plates : 

Tunnel restriction code (ADR) : E  
LQ : 120ml  
Excepted quantities (ADR) : E1

### Transport by sea

UN-No. (IMDG) : 1956  
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.  
Class (IMDG) : 2.2 - Non-flammable, non-toxic gases

### Air transport

UN-No.(IATA) : 1956  
Proper Shipping Name (IATA) : COMPRESSED GAS, N.O.S.  
Class (IATA) : 2

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Sulphur dioxide (7446-09-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on the United States SARA Section 302

|  |     |
|--|-----|
| SARA Section 302 Threshold Planning Quantity (TPQ) | 500 |
|--|-----|

### 15.2. International regulations

#### CANADA

#### Sulphur dioxide (7446-09-5)

Listed on the Canadian DSL (Domestic Substances List)

|                      |   |
|----------------------|---|
| WHMIS Classification | Class A - Compressed Gas<br>Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects<br>Class D Division 2 Subdivision B - Toxic material causing other toxic effects<br>Class E - Corrosive Material |
|----------------------|---|

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

Listed on the Canadian DSL (Domestic Substances List)

|                      |  |
|----------------------|--|
| WHMIS Classification | Class A - Compressed Gas<br>Class C - Oxidizing Material |
|----------------------|--|

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

Listed on the Canadian DSL (Domestic Substances List)

|                      |                          |
|----------------------|--------------------------|
| WHMIS Classification | Class A - Compressed Gas |
|----------------------|--------------------------|

### EU-Regulations

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Sulphur dioxide (7446-09-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

### Classification according to Directive 67/548/EEC or 1999/45/EC

#### 15.2.2. National regulations

### Sulphur dioxide (7446-09-5)

Listed on the AICS (the Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Canadian IDL (Ingredient Disclosure List)

#### 15.3. US State regulations

### Sulphur dioxide (7446-09-5)

| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
|---|---|---|---|-----------------------------------|
|   | Yes   |   |   |                                   |

### Sulphur dioxide (7446-09-5)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) List

### Oxygen (7782-44-7)

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

### Nitrogen (7727-37-9)

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

|                       |   |
|-----------------------|---|
| Indication of changes | : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.  |
|                       | :   |
| Training advice       | : Receptacle under pressure.  |
| Other information     | : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. |

Full text of H-phrases: see section 16:

|                               |  |
|-------------------------------|--|
| Acute Tox. 3 (Inhalation:gas) | Acute toxicity (inhalation:gas) Category 3         |
| Compressed gas                | Gases under pressure Compressed gas                |
| Eye Dam. 1                    | Serious eye damage/eye irritation Category 1       |
| Liquefied gas                 | Gases under pressure Liquefied gas                 |
| Ox. Gas 1                     | Oxidizing gases Category 1                         |
| Skin Corr. 1B                 | Skin corrosion/irritation Category 1B              |
| H270                          | May cause or intensify fire; oxidizer              |
| H280                          | Contains gas under pressure; may explode if heated |
| H314                          | Causes severe skin burns and eye damage            |
| H318                          | Causes serious eye damage                          |

# Oxygen (19.5% - 23.5%), Sulfur Dioxide (0.0001% - 0.9999%) in Nitrogen

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

|      |                  |
|------|------------------|
| H331 | Toxic if inhaled |
|------|------------------|

SDS US (GHS HazCom 2012)

*This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.*