Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance
Safety Data Sheet 50023MSA
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 07/09/2014 Revision date: 07/09/2014  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 (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance
MSA P/N: : 814866, 10028076, 711078, 10044014, 10150611

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
Manufacturer: Calgaz, division of Air Liquide
821 Chesapeake Drive
Cambridge, MD 21613

U.S. Supplier
Mine Safety Appliances Company
Cranberry Township
Pennsylvania U.S.A. 16066
1-800-MSA-2222
www.msanet.com/prism

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300
Internationally: 1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US classification
Compressed gas H280

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated
Precautionary statements (GHS-US) : P271 - Use only outdoors or in a well-ventilated area
P202 - Do not handle until all safety precautions have been read and understood
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
P403 - Store in a well-ventilated place

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

Full text of H-phrases: see section 16

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>(CAS No) 7727-37-9</td>
<td>76.45 - 99.999</td>
<td>Compressed gas, H280</td>
</tr>
<tr>
<td>Oxygen</td>
<td>(CAS No) 7782-44-7</td>
<td>0 - 23.5</td>
<td>Ox. Gas 1, H270, Compressed gas, H280</td>
</tr>
<tr>
<td>Anhydrous ammonia</td>
<td>(CAS No) 7664-41-7</td>
<td>0.0001 - 0.05</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

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 after inhalation: Adverse effects not expected from this product. If you feel unwell, seek medical advice.
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.

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

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen. Obtain medical attention if breathing difficulty persists.

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: No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions: In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. 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: Try to stop release. Ensure adequate ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

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.

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.
## Environmental precautions

None.

### 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.

### Reference to other sections

See also Sections 8 and 13.

### SECTION 7: Handling and storage

#### Precautions for safe handling

- **Additional hazards when processed**: Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure.
- **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.

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

- **Technical measures**: Comply with applicable regulations. Protect cylinders from physical damage; do not drag, roll, slide or drop.
- **Storage conditions**: Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.
- **Incompatible products**: None known.
- **Incompatible materials**: Flammable materials.

#### Specific end use(s)

- Test gas/Calibration gas.

### SECTION 8: Exposure controls/personal protection

#### Control parameters

- **Nitrogen (7727-37-9)**

#### 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. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.
- **Skin and body protection**: Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
- **Respiratory protection**: Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
- **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

#### Information on basic physical and chemical properties

- **Physical state**: Gas
- **Appearance**: transparent and colourless.
- **Molecular mass**: Not applicable for gas-mixtures.
- **Colour**: Colourless.
- **Odour**: No data available
- **Odour threshold**: Odour threshold is subjective and inadequate to warn for overexposure.
- **pH**: Not applicable for gas-mixtures.
- **Relative evaporation rate (butylacetate=1)**: No data available
- **Relative evaporation rate (ether=1)**: Not applicable for gas-mixtures.
### Melting point
Not applicable for gas-mixtures.

### Freezing point
Not applicable for gas-mixtures.

### Boiling point
Not applicable for gas-mixtures.

### Flash point
Not applicable.

### Auto-ignition temperature
No available data

### Decomposition temperature
No available data

### Flammability (solid, gas)
Not applicable (non-flammable gas)

### Vapour pressure
Not applicable.

### Relative vapour density at 20 °C
No data available

### Relative density
No data available

### Relative gas density
Heavier than air.

### Solubility
No data available

### Log Pow
Not applicable for gas-mixtures.

### Log Kow
Not applicable for gas-mixtures.

### Viscosity, kinematic
Not applicable.

### Viscosity, dynamic
Not applicable.

### Explosive properties
Not applicable.

### Oxidising properties
Not combustible but enhances combustion of other substances.

### Explosive limits
Not applicable for gas-mixtures.

#### 9.2. Other information
- **Gas group**: Compressed gas
- **Additional information**: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

### Section 10: Stability and reactivity

#### 10.1. Reactivity
No reactivity hazard other than the effects described in sub-sections below.

#### 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

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 inhalation rat (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nitrogen (7727-37-9)</strong></td>
<td>410000 ppm/4h</td>
</tr>
<tr>
<td><strong>Oxygen (7782-44-7)</strong></td>
<td>400000 ppm/4h</td>
</tr>
<tr>
<td><strong>Anhydrous ammonia (7664-41-7)</strong></td>
<td></td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>2000 ppm/4h</td>
</tr>
<tr>
<td>ATE CLP (gases)</td>
<td>2000.000 ppm/4h</td>
</tr>
</tbody>
</table>

- **Skin corrosion/irritation**
  - Not classified
  - **pH**: Not applicable for gas-mixtures.
## Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance

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<table>
<thead>
<tr>
<th>Property</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/injuries after inhalation</td>
<td>Adverse effects not expected from this product. If you feel unwell, seek medical advice.</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Adverse effects not expected from this product.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Adverse effects not expected from this product.</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
<td>Ingestion is not considered a potential route of exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not applicable for gases and gas-mixtures.</td>
</tr>
<tr>
<td>Symptoms/injuries after intravenous ingestion</td>
<td>Ingestion is not considered a potential route of exposure.</td>
</tr>
</tbody>
</table>

### Section 12: Ecological Information

#### 12.1. Toxicity

Ecology - general: No ecological damage caused by this product.

#### 12.2. Persistence and degradability

**Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance**

Persistence and degradability: No data available.

**Nitrogen (7727-37-9)**

Persistence and degradability: No ecological damage caused by this product.

**Oxygen (7782-44-7)**

Persistence and degradability: No ecological damage caused by this product.

**Anhydrous ammonia (7664-41-7)**

Persistence and degradability: The substance is biodegradable. Unlikely to persist.

#### 12.3. Bioaccumulative potential

**Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance**

Log Pow: Not applicable for gas-mixtures.

Log Kow: Not applicable for gas-mixtures.

Bioaccumulative potential: No data available.

**Nitrogen (7727-37-9)**

Log Pow: Not applicable for inorganic gases.

Bioaccumulative potential: No ecological damage caused by this product.

**Oxygen (7782-44-7)**

Log Pow: Not applicable for inorganic gases.

Bioaccumulative potential: No ecological damage caused by this product.

**Anhydrous ammonia (7664-41-7)**

Log Pow: Not applicable for inorganic gases.

Bioaccumulative potential: Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

#### 12.4. Mobility in soil

**Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance**

Mobility in soil: No data available.

**Nitrogen (7727-37-9)**

Ecology - soil: No ecological damage caused by this product.
Oxygen (0 - 23.9%), Ammonia (0.0001 - 0.05%) in Nitrogen Balance
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<table>
<thead>
<tr>
<th>Oxygen (7782-44-7)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anhydrous ammonia (7664-41-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
</tr>
</tbody>
</table>

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods: Contact supplier if guidance is required. May be vented to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org for more guidance on suitable disposal methods.

Waste disposal recommendations: Dispose of contents/container in accordance with local/regional/national/international regulations. Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at 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. (Oxygen, Nitrogen)
UN-No.(DOT): 1956
DOT NA no.: UN1956
DOT Proper Shipping Name: Compressed gas, n.o.s.
Oxygen, Nitrogen
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: No supplementary information available.

Other information: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

ADR

Transport document description:

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
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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

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Oxygen (7782-44-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Nitrogen (7727-37-9)
Listed on the Canadian DSL (Domestic Sustances List)
WHMIS Classification Class A - Compressed Gas

Oxygen (7782-44-7)
Listed on the Canadian DSL (Domestic Sustances List)
WHMIS Classification Class A - Compressed Gas
Class C - Oxidizing Material

EU-Regulations

Nitrogen (7727-37-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Oxygen (7782-44-7)
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

Nitrogen (7727-37-9)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
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)

Oxygen (7782-44-7)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
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)

15.3. US State regulations

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
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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

SECTION 16: Other information
Training advice : Receptacle under pressure.
Other information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation. Classification in accordance with calculation methods of regulation (EC) 1272/2008 CLP / (EC) 1999/45 DPD.

Full text of H-phrases: see section 16:

| Compressed gas | Gases under pressure : Compressed gas |
| Ox. Gas 1      | Oxidising Gases, Category 1           |
| H270           | May cause or intensify fire; oxidizer |
| H280           | Contains gas under pressure; may explode if heated |

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 gas mixture. To the best of Calgaz’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 gas mixture 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.