Gas Mixture (Argon, Carbon Dioxide, Oxygen)
Safety Data Sheet P-19-6589
Date of issue: 01/04/2017

SECTION: 1. Product and company identification

1.1. Product identifier
Product form: Mixture
Name: Gas Mixture (Argon, Carbon Dioxide, Oxygen)
Formula: Non-oxidizing mixtures of argon, carbon dioxide, and oxygen
Other means of identification: Extendar Food Gases EX 56

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Industrial use
Food applications

1.3. Details of the supplier of the safety data sheet
Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number
Emergency number: Onsite Emergency: 1-800-645-4633
CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

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

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

Signal word (GHS-US) : WARNING
Hazard statements (GHS-US) : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
CGA-HG01 - MAY CAUSE FROSTBITE
CGA-HG03 - MAY INCREASE RESPIRATION AND HEART RATE
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION

Precautionary statements (GHS-US) : P410+P403 - Protect from sunlight. Store in a well-ventilated place
P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing gas, vapors
P262 - Do not get in eyes, on skin, or on clothing
P271+P403 - Use and store only outdoors or in a well-ventilated place
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG06 - Close valve after each use and when empty
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards
No additional information available

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2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon</td>
<td>(CAS No) 7440-37-1</td>
<td>0 - 95</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>(CAS No) 124-38-9</td>
<td>0 - 95</td>
</tr>
<tr>
<td>Oxygen</td>
<td>(CAS No) 7782-44-7</td>
<td>0 - 14.45</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact: Wash with plenty of soap and water. For exposure, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. Get immediate medical attention.

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

No additional information available

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Firefighting instructions: Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Protection during firefighting: Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.

Special protective equipment for fire fighters: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

Specific methods: Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.

Stop flow of product if safe to do so

Use water spray or fog to knock down fire fumes if possible.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Evacuate area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Stop leak if safe to do so.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>USA OSHA</th>
<th>Carbon dioxide (124-38-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon (7440-37-1)</td>
<td>Not established</td>
<td>Not established</td>
<td>ACGIH TLV-TWA (ppm)</td>
</tr>
<tr>
<td>Carbon dioxide</td>
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<td></td>
<td></td>
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<tr>
<td>(124-38-9)</td>
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Gas Mixture (Argon, Carbon Dioxide, Oxygen)

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<table>
<thead>
<tr>
<th>Carbon dioxide (124-38-9)</th>
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<tr>
<td>ACGIH</td>
<td>ACGIH TLV-STEL (ppm)</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
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<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Oxygen (7782-44-7)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>Not established</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>Not established</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages. Provide adequate general and local exhaust ventilation. Consider work permit system e.g. for maintenance activities.

Hand protection: Wear working gloves when handling gas containers.

Eye protection: Wear safety glasses with side shields.

Respiratory protection: When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection: None necessary.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Gas

Appearance: Colorless gas.

Color: Colorless

Odor: odorless

Odor threshold: No data available

pH: Not applicable.

Relative evaporation rate (butyl acetate=1): No data available

Relative evaporation rate (ether=1): Not applicable.

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: Not applicable.

Relative vapor density at 20 °C: No data available

Relative density: No data available

Solubility: Water: No data available

Log Pow: Not applicable.

Log Kow: Not applicable.

Viscosity, kinematic: Not applicable.

Viscosity, dynamic: Not applicable.
Gas Mixture (Argon, Carbon Dioxide, Oxygen)
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<table>
<thead>
<tr>
<th>Explosive properties</th>
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<tbody>
<tr>
<td>Oxidizing properties</td>
<td>None.</td>
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<tr>
<td>Explosion limits</td>
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</tbody>
</table>

### 9.2 Other information

**Gas group**: Compressed gas

### 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

No additional information available

10.4 Conditions to avoid

No additional information available

10.5 Incompatible materials

No additional information available

10.6 Hazardous decomposition products

No additional information available

### SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: Not classified
- Skin corrosion/irritation: Not classified
- pH: Not applicable.
- Serious eye damage/irritation: Not classified
- pH: Not applicable.
- Respiratory or skin sensitzation: Not classified
- Germ cell mutagenicity: Not classified
- Carcinogenicity: Not classified
- Reproductive toxicity: Not classified
- Specific target organ toxicity (single exposure): Not classified
- Specific target organ toxicity (repeated exposure): Not classified
- Aspiration hazard: Not classified

### SECTION 12: Ecological information

12.1 Toxicity

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

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Description</th>
<th>Persistence and degradability</th>
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</thead>
<tbody>
<tr>
<td>Gas Mixture (Argon, Carbon Dioxide, Oxygen)</td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Argon (7440-37-1)</td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Carbon dioxide (124-38-9)</td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>
Gas Mixture (Argon, Carbon Dioxide, Oxygen)
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<table>
<thead>
<tr>
<th>Oxygen (7782-44-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
</tbody>
</table>

12.3. **Bioaccumulative potential**

**Gas Mixture (Argon, Carbon Dioxide, Oxygen)**

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

**Argon (7440-37-1)**

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
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**Carbon dioxide (124-38-9)**

<table>
<thead>
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<th>BCF fish 1</th>
<th>(no bioaccumulation)</th>
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</thead>
<tbody>
<tr>
<td>Log Pow</td>
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<tr>
<td>Log Kow</td>
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</table>

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

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

**12.4. Mobility in soil**

**Gas Mixture (Argon, Carbon Dioxide, Oxygen)**

<table>
<thead>
<tr>
<th>Mobility in soil</th>
<th>No data available.</th>
</tr>
</thead>
</table>

**Argon (7440-37-1)**

<table>
<thead>
<tr>
<th>Mobility in soil</th>
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</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>No ecological damage caused by this product.</td>
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</tbody>
</table>

**Carbon dioxide (124-38-9)**

<table>
<thead>
<tr>
<th>Mobility in soil</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>No ecological damage caused by this product.</td>
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**Oxygen (7782-44-7)**

<table>
<thead>
<tr>
<th>Mobility in soil</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>No ecological damage caused by this product.</td>
</tr>
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**12.5. Other adverse effects**

<table>
<thead>
<tr>
<th>Effect on ozone layer</th>
<th>None</th>
</tr>
</thead>
</table>

**SECTION 13: Disposal considerations**

13.1. **Waste treatment methods**

Waste treatment methods: May be vented to atmosphere in a well ventilated place. Consult supplier for specific recommendations. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.

Waste disposal recommendations: Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

**SECTION 14: Transport information**

In accordance with DOT

Transport document description: UN1956 Compressed gas, n.o.s., 2.2
UN-No.(DOT): UN1956
Proper Shipping Name (DOT): Compressed gas, n.o.s.
Class (DOT): 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
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Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Symbols : G - Identifies proper shipping name (PSN) requiring the addition of technical name(s) in parentheses following the PSN

Additional information
Other information : No supplementary information available.
Special transport precautions : 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.

Transport by sea
UN-No. (IMDG) : 1956
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.
Class (IMDG) : 2 - 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
Gas Mixture (Argon, Carbon Dioxide, Oxygen)
SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard
Sudden release of pressure hazard
All components of this product are listed on the Toxic Substances Control Act (TSCA) inventory.

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations
CANADA
Argon (7440-37-1)
Listed on the Canadian DSL (Domestic Substances List)

Carbon dioxide (124-38-9)
Listed on the Canadian DSL (Domestic Substances List)

Oxygen (7782-44-7)
Listed on the Canadian DSL (Domestic Substances List)
Gas Mixture (Argon, Carbon Dioxide, Oxygen)

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EU-Regulations

15.2. National regulations
No additional information available

15.3. US State regulations

<table>
<thead>
<tr>
<th>Gas Mixture (Argon, Carbon Dioxide, Oxygen)()</th>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argon (7440-37-1)</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>Non-significant risk level (NSRL)</td>
</tr>
<tr>
<td>Carbon dioxide (124-38-9)</td>
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<td>No</td>
<td>No</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>Non-significant risk level (NSRL)</td>
</tr>
<tr>
<td>Argon (7440-37-1)</td>
<td>U.S. - Massachusetts - Right To Know List</td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
<td>Non-significant risk level (NSRL)</td>
<td></td>
</tr>
<tr>
<td>Carbon dioxide (124-38-9)</td>
<td>U.S. - Massachusetts - Right To Know List</td>
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<td></td>
</tr>
</tbody>
</table>

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.
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SECTION 16: Other information

Other information:
When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product.

Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify their employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product.

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NFPA health hazard:
1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard:
0 - Materials that will not burn.

NFPA reactivity:
0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

HMIS III Rating

Health:
1 - Slight Hazard - Irritation or minor reversible injury possible

Flammability:
0 - Minimal Hazard

Physical:
3 - Serious Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.