PTG-4032
Safety Data Sheet PTG-4032
Date of issue: 05/11/2015    Revision date: 07/01/2015    Supersedes: 06/08/2015    Version: 1.1

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

1.1. Product identifier
Product form: Mixture
Formula: Non-flammable, Non-oxidizing gas mixture containing one or more of the following components: Hexane, Heptane, Isobutene, Oxygen, Nitrogen.

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Calibration / Reference
Use of the substance/mixture: Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet
PortaGas (Praxair, Inc.)
1202 E Sam Houston Pkwy S
Pasadena, TX 77503 - USA
T +1 713-928-6477 - F +1 713-928-9961
www.praxair.com

1.4. Emergency telephone number
Emergency number: Onsite Emergencies: 1-800-645-4633
CHEMTREC: USA 1-800-424-9300, International 001-703-527-3887 (Collect calls accepted, contract 17729)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification (GHS-US)
Compressed gas H280
Full text of H-phrases: see section 16

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
Precautionary statements (GHS-US): P403 - Use and store only outdoors or in a well-ventilated place.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F).
CGA-PG12 - Do not open valve until connected to equipment prepared for use.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG21 - Open valve slowly.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG11 - Never put cylinders into unventilated areas of passenger vehicles.
CGA-PG27 - Read and follow the Safety Data Sheet (SDS) before use.

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS-US)
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable

3.2. Mixture
### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

**First-aid measures after inhalation:** Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

**First-aid measures after skin contact:** Adverse effects not expected from this product.

**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.

**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

Obtain medical assistance.

### 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.

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

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**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

Try to stop release. Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

#### 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.

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**Table:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>(CAS No) 7727-37-9</td>
<td>79.1 - 99.999</td>
<td>Compressed gas, H280</td>
</tr>
<tr>
<td>Oxygen</td>
<td>(CAS No) 7782-44-7</td>
<td>0.0001 - 20.9</td>
<td>Ox, Gas 1, H270, Compressed gas, H280</td>
</tr>
<tr>
<td>Isobutylene</td>
<td>(CAS No) 115-11-7</td>
<td>0.0001 - 1</td>
<td>Liquefied gas, H280</td>
</tr>
<tr>
<td>n-Hexane</td>
<td>(CAS No) 110-54-3</td>
<td>0.0001 - 0.9999</td>
<td>Flam. Liq. 2, H225, Skin Irrit. 2, H315, STOT SE 3, H336, STOT RE 2, H373, Asp. Tox. 1, H304, Aquatic Acute 2, H401, Aquatic Chronic 2, H411</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>(CAS No) 142-82-5</td>
<td>0.0001 - 0.6</td>
<td>Flam. Liq. 2, H225</td>
</tr>
</tbody>
</table>
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>PTG-4032</th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>OSBA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>n-Hexane (110-54-3)</td>
<td>ACGIH</td>
<td>ACGIH TLV-TWA (ppm) 50 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>OSBA</td>
<td>OSHA PEL (TWA) (mg/m³) 1800 mg/m³</td>
</tr>
<tr>
<td>ACGIH</td>
<td>OSBA</td>
<td>OSHA PEL (TWA) (ppm) 500 ppm</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>ACGIH</td>
<td>ACGIH TLV-TWA (ppm) 400 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH</td>
<td>ACGIH TLV-STE (ppm) 500 ppm</td>
</tr>
<tr>
<td>OSBA</td>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³) 2000 mg/m³</td>
</tr>
<tr>
<td>OSBA</td>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm) 500 ppm</td>
</tr>
<tr>
<td>Isobutylene (115-11-7)</td>
<td>ACGIH</td>
<td>ACGIH TLV-TWA (ppm) 250 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>OSBA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Nitrogen (7727-37-9)</td>
<td>ACGIH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>OSBA</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Oxygen (7782-44-7)</td>
<td>ACGIH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>OSBA</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>
### 8.2. Exposure controls

**Appropriate engineering controls**: Provide adequate general and local exhaust ventilation. Alarm detectors should be used when toxic gases may be released. Product to be handled in a closed system. Ensure exposure is below occupational exposure limits (where available).

**Personal protective equipment**: Gloves. Safety glasses.

**Eye protection**: Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

**Skin and body protection**: Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

**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 (e.g., an organic vapor cartridge). For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

**Thermal hazard protection**: Wear cold insulating gloves when transferring or breaking transfer connections.

### SECTION 9: Physical and chemical properties

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

- **Physical state**: Gas
- **Color**: Colorless
- **Odor**: No data available
- **Odor threshold**: No data available
- **pH**: Not applicable.
- **Melting point**: No data available
- **Freezing point**: No data available
- **Boiling point**: No data available
- **Flash point**: No data available
- **Relative evaporation rate (butyl acetate=1)**: No data available
- **Relative evaporation rate (ether=1)**: Not applicable.
- **Flammability (solid, gas)**: No data available
- **Explosion limits**: No data available
- **Explosive properties**: Not applicable.
- **Oxidizing properties**: None
- **Vapor pressure**: Not applicable.
- **Relative density**: No data available
- **Relative vapor density at 20 °C**: No data available
- **Solubility**: Water: No data available
- **Log Pow**: Not applicable.
- **Log Kow**: Not applicable.
- **Auto-ignition temperature**: No data available
- **Decomposition temperature**: No data available
- **Viscosity**: No data available
- **Viscosity, kinematic**: Not applicable.
- **Viscosity, dynamic**: Not applicable.

#### 9.2. Other information

No additional information available.
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

- **n-Hexane (110-54-3)**
  - LD50 dermal rabbit: 3000 mg/kg
  - LC50 inhalation rat (ppm): 48000 ppm/4h
  - ATE US (dermal): 3000.000 mg/kg body weight
  - ATE US (gases): 48000.000 ppmV/4h

- **n-Heptane (142-82-5)**
  - LD50 dermal rabbit: 3000 mg/kg
  - LC50 inhalation rat (mg/l): 103 g/m³ (Exposure time: 4 h)
  - LC50 inhalation rat (ppm): 50266 ppm/1h
  - ATE US (dermal): 3000.000 mg/kg body weight
  - ATE US (gases): 25133.000 ppmV/4h
  - ATE US (vapors): 103.000 mg/l/4h
  - ATE US (dust, mist): 103.000 mg/l/4h

- **Isobutylene (115-11-7)**
  - LC50 inhalation rat (mg/l): 620 mg/l/4h
  - LC50 inhalation rat (ppm): ≥ 10000
  - ATE US (gases): 10000.000 ppmV/4h
  - ATE US (vapors): 620.000 mg/l/4h
  - ATE US (dust, mist): 620.000 mg/l/4h

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

Isobutylene (115-11-7)
National Toxicology Program (NTP) Status : 1 - Evidence of Carcinogenicity

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified
Specific target organ toxicity (repeated exposure) : Not classified
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Aspiration hazard: Not classified

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general: HARMFUL TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 fish 1</th>
<th>Exposure time: 96 h - Species: Pimephales promelas [flow-through]</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane (110-54-3)</td>
<td>2.54 mg/l</td>
<td></td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>375.0 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTG-4032</td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Isobutylene (115-11-7)</td>
<td>The substance is biodegradable. Unlikely to persist.</td>
</tr>
<tr>
<td>Nitrogen (7727-37-9)</td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Oxygen (7782-44-7)</td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

#### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Log Pow</th>
<th>Log Kow</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>4.66</td>
<td></td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Isobutylene (115-11-7)</td>
<td>2.35</td>
<td></td>
<td>Not expected to bioaccumulate due to the low log Kow (log Kow &lt; 4). Refer to section 9.</td>
</tr>
<tr>
<td>Nitrogen (7727-37-9)</td>
<td></td>
<td></td>
<td>No ecological damage caused by this product.</td>
</tr>
<tr>
<td>Oxygen (7782-44-7)</td>
<td></td>
<td></td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

#### 12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mobility in soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTG-4032</td>
<td>No data available.</td>
</tr>
<tr>
<td>Isobutylene (115-11-7)</td>
<td>Because of its high volatility, the product is unlikely to cause ground or water pollution.</td>
</tr>
<tr>
<td>Nitrogen (7727-37-9)</td>
<td>No data available.</td>
</tr>
<tr>
<td>Oxygen (7782-44-7)</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
12.5. **Other adverse effects**

Effect on ozone layer : None.

Effect on the global warming : No known ecological damage caused by this product.

**SECTION 13: Disposal considerations**

13.1. **Waste treatment methods**

Waste disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

**SECTION 14: Transport information**

**Department of Transportation (DOT)**

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.

Transport hazard class(es) (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

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

DOT Packaging Exceptions (49 CFR 173.xxx) : 306;307

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 172.101 HMT, Column 9a) : 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 172.101 HMT, Column 9b) : 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.

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.

**ADR**


Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 20

Classification code (ADR) : 1A

Hazard Class Labels (ADR) : 2.2 - Non-flammable compressed gas
Safety Data Sheet

**Orange plates**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td></td>
</tr>
</tbody>
</table>

**Tunnel restriction code (ADR)**: E

**Limited quantities (ADR)**: 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

**Limited quantities (IMDG)**: 120ml

**EmS-No. (1)**: F-C

**MFAG-No**: 620

**EmS-No. (2)**: S-V

**Air transport**

**UN-No. (IATA)**: 1956

**Proper Shipping Name (IATA)**: COMPRESSED GAS, N.O.S.

**Class (IATA)**: 2

**Instruction "cargo" (ICAO)**: 200

**Instruction "passenger" (ICAO)**: 200

**Instruction "passenger" - Limited quantities (ICAO)**: FORBIDDEN

**SECTION 15: Regulatory information**

**15.1. US Federal regulations**

**n-Hexane (110-54-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

**SARA Section 313 - Emission Reporting**: 1.0 %

**n-Heptane (142-82-5)**

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

**EPA TSCA Regulatory Flag**: T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

**Isobutylene (115-11-7)**

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

**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**

**n-Hexane (110-54-3)**

Listed on the Canadian DSL (Domestic Substances List)

**WHMIS Classification**

Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

**n-Heptane (142-82-5)**

Listed on the Canadian DSL (Domestic Substances List)

**WHMIS Classification**

Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

**Isobutylene (115-11-7)**

Listed on the Canadian DSL (Domestic Substances List)
Nitrogen (7727-37-9)
Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class A - Compressed Gas

Oxygen (7782-44-7)
Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class A - Compressed Gas
Class C - Oxidizing Material

EU-Regulations

n-Hexane (110-54-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

n-Heptane (142-82-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Isobutylene (115-11-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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]
Flam. Gas 1 H220
Compressed gas H280
Aquatic Chronic 3 H412
Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

n-Hexane (110-54-3)
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 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)

n-Heptane (142-82-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
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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

#### n-Hexane (110-54-3)

- 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

#### n-Heptane (142-82-5)

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

#### Isobutylene (115-11-7)

- 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

#### 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

<table>
<thead>
<tr>
<th>Revision date</th>
<th>07/01/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training advice</td>
<td>Users of breathing apparatus must be trained.</td>
</tr>
<tr>
<td>Other information</td>
<td>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 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. Praxair SDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from <a href="http://www.praxair.com">www.praxair.com</a>. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (Phone: 1-800-PRAXAIR/1-800-772-9247; Address: Praxair Call Center, Praxair, Inc., P.O. Box 44, Tonawanda, NY 14151-0044). PRAXAIR and the Flowing Airstream design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.</td>
</tr>
</tbody>
</table>
PTG-4032
Safety Data Sheet

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 2</td>
<td>Hazardous to the aquatic environment - Acute Hazard Category 2</td>
</tr>
<tr>
<td>Aquatic Chronic 2</td>
<td>Hazardous to the aquatic environment - Chronic Hazard Category 2</td>
</tr>
<tr>
<td>Asp. Tox. 1</td>
<td>Aspiration hazard Category 1</td>
</tr>
<tr>
<td>Compressed gas</td>
<td>Gases under pressure Compressed gas</td>
</tr>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids Category 2</td>
</tr>
<tr>
<td>Liquefied gas</td>
<td>Gases under pressure Liquefied gas</td>
</tr>
<tr>
<td>Ox. Gas 1</td>
<td>Oxidizing gases Category 1</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>STOT RE 2</td>
<td>Specific target organ toxicity (repeated exposure) Category 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>H225</td>
<td>HIGHLY FLAMMABLE LIQUID AND VAPOR</td>
</tr>
<tr>
<td>H270</td>
<td>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER</td>
</tr>
<tr>
<td>H280</td>
<td>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED</td>
</tr>
<tr>
<td>H304</td>
<td>MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS</td>
</tr>
<tr>
<td>H315</td>
<td>CAUSES SKIN IRRITATION</td>
</tr>
<tr>
<td>H336</td>
<td>MAY CAUSE DROWSINESS OR DIZZINESS</td>
</tr>
<tr>
<td>H373</td>
<td>MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE</td>
</tr>
<tr>
<td>H401</td>
<td>TOXIC TO AQUATIC LIFE</td>
</tr>
<tr>
<td>H411</td>
<td>TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

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.