

SECTION: 1. Product and company identification

1.1. Product identifier

Product form : Substance
Substance name : PTG-4089
Chemical name : ISOBUTYLENE
CAS No : 115-11-7
Formula : C4H8

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

Use of the substance/mixture : Industrial use; Use as directed.
Restrictions on use : No additional information

1.3. Details of the supplier of the safety data sheet

Manufactured For:
Scientific Gas Australia Pty Ltd.
Unit 10, 12 Anderson Street
Banksmeadow NSW, 2019 - Australia
T PH 1300 880 531

By:
PortaGas (Praxair, Inc.)
1202 E Sam Houston Pkwy S
Pasadena, TX 77503
T 281-928-6477

New Zealand:
Airtanks Limited Unit 3,
5/343 Church Street, Onehunga,
Auckland 1061, New Zealand
Phone: +64 9 930 6360

1.4. Emergency telephone number

Emergency number : Australian Poison Information Centre: 13 11 26;
Australian Fire Brigade: 000
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

Classification (GHS-AU)

Flam. Gas 1 H220
Press. Gas (Liq.) H280
Simple asphyxiant SIAS

2.2. Label elements

GHS AU labelling

Hazard pictograms (GHS AU) :



GHS02

GHS04

Signal word (GHS AU) : DANGER
Hazard statements (GHS AU) : H220 - **EXTREMELY FLAMMABLE GAS**
H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION



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Precautionary statements (GHS AU) : P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271+P403 - Use and store only outdoors or in a well-ventilated place.
P377 - LEAKING GAS FIRE: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG11 - Never put cylinders into unventilated areas of passenger vehicles.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F).
CGA-PG27 - Read and follow the Safety Data Sheet (SDS) before use.

2.3. Other hazards

Other hazards which do not result in classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name : PTG-4089
CAS No : 115-11-7

Name	Product identifier	%
Isobutylene	(CAS No) 115-11-7	< 100

3.2. Mixture

Not applicable

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 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.

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

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog. Use extinguishing media appropriate for surrounding fire.
HazChem code : 2YE.

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. 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.

Hazchem Code	: 2YE
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.
Other information	: Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

6.1.2. For emergency responders

6.2. Environmental precautions

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

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 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

Isobutylene (115-11-7)

ACGIH	ACGIH OEL TWA	250 ppm
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8.2. Exposure controls

- Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).
- Personal protective equipment : Gloves. Safety glasses.
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- 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 AS/NZS 1336 and AS/NZS 1337.
- Skin and body protection : Wear work gloves and metatarsal shoes for cylinder handling. Protective equipment where needed. Select in accordance with AS/NZS 2161, AS/NZS 2210.1, and AS/NZS 4503.
- Respiratory protection : When workplace conditions warrant respirator use, follow a respiratory protection program that meets AS/NSZ 1715, AS/NSZ 1716, 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 : Wear cold insulating gloves when transfilling or breaking transfer connections.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Gas
- Molecular mass : 56 g/mol
- Color : Colorless
- Odor : No data available
- 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 : -6.9 °C
- Flash point : -80 °C (closed cup)
- Critical temperature : 144.7 °C
- Auto-ignition temperature : 465 °C
- Decomposition temperature : No data available
- Flammability : No data available
- Vapor pressure : Not applicable.
- Relative vapor density at 20 °C : No data available
- Relative density : No data available
- Density : 0.599 g/cm³ (at 20 °C)
- Solubility : Water: No data available
- Partition coefficient n-octanol/water (Log Pow) : Not applicable.
- Partition coefficient n-octanol/water (Log Kow) : Not applicable.



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Viscosity, kinematic : Not applicable.
 Viscosity, dynamic : Not applicable.
 Explosive properties : Not applicable.
 Oxidizing properties : None.
 Explosion limits : No data available

9.2. Other information

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

PTG-4089 (V) 115-11-7	
LC50 inhalation rat (ppm)	541657 ppm/1h
ATE US (gases)	270828.5 ppmV/4h
Isobutylene (115-11-7)	
LC50 inhalation rat (ppm)	541657 ppm/1h
ATE US (gases)	270828.5 ppmV/4h

Skin corrosion/irritation : Not classified
 pH: Not applicable.
 Serious eye damage/irritation : Not classified
 pH: Not applicable.
 Respiratory or skin sensitization : Not classified
 Germ cell mutagenicity : Not classified
 Carcinogenicity : Not classified

PTG-4089 (115-11-7)	
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity
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
 Aspiration hazard : Not applicable

SECTION 12: Ecological information

12.1. Toxicity

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

12.2. Persistence and degradability

PTG-4089 (115-11-7)	
Persistence and degradability	No ecological damage caused by this product.

Isobutylene (115-11-7)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

PTG-4089 (115-11-7)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable.
Partition coefficient n-octanol/water (Log Kow)	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

Isobutylene (115-11-7)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable.

12.4. Mobility in soil

PTG-4089 (115-11-7)	
Mobility in soil	No data available.

Isobutylene (115-11-7)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

12.5. Other adverse effects

Effect on ozone layer : None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

Transport of Australian Dangerous Goods

UN-No. (ADG) : UN1055
 Proper Shipping Name (ADG) : ISOBUTYLENE
 Class (ADG) : 2.1 - Class 2.1 - Flammable gas
 Danger labels (ADG) : 2.1 - Flammable gases



In accordance with DOT

Transport document description : UN1055 Isobutylene, 2.1
 UN-No.(DOT) : UN1055
 Proper Shipping Name (DOT) : Isobutylene
 Class (DOT) : 2.1 - Class 2.1 - Flammable gas

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Hazard labels (DOT) : 2.1 - Flammable gas



DOT Special Provisions (49 CFR 172.102) : 19 - For domestic transportation only, the identification number UN1075 may be used in place of the identification number specified in column (4) of the 172.101 table. The identification number used must be consistent on package markings, shipping papers and emergency response information.
 T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

Additional information

Emergency Response Guide (ERG) Number : 115 (UN1055)
 HazChem code : 2YE.
 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) : 1055
 Proper Shipping Name (IMDG) : ISOBUTYLENE
 Class (IMDG) : 2 - Gases
 Limited quantities (IMDG) : 0
 EmS-No. (1) : F-D
 EmS-No. (2) : S-U

Air transport

UN-No. (IATA) : 1055
 Proper Shipping Name (IATA) : Isobutylene
 Class (IATA) : 2 - Gases
 Instruction "cargo" (ICAO) : 200
 Instruction "passenger" (ICAO) : FORBIDDEN
 Instruction "passenger" - Limited quantities (ICAO) : 0

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

EU-Regulations

15.2.2. National regulations

No additional information available

15.3. US State regulations

PTG-4089(115-11-7)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No

Isobutylene (115-11-7)				
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	Non-significant risk level (NSRL)
No	No	No	No	

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

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.

Linde 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 Linde 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 Linde Inc, it is the user's obligation to determine the conditions of safe use of the product.

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SDS Australia - Praxair

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