



The Safety Company

PTG-4117

Safety Data Sheet PTG-4117

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication Prepared for Canada according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 01/14/2016 Revision date: 08/25/2019 Supersedes: 01/14/2016 Version: 1.1

SECTION 1: Identification

1.1 Product identifier

Product form : Mixture

Product name : PTG-4117

Formula :

1.2 Relevant identified uses of the substance or mixture and uses advised against : (0.0001 - 1 %) Hydrogen Sulfide (0.0001 - 0.0999 %) Carbon Monoxide, (0.0001 - 8.5 % Carbon Dioxide, (0.0001 - 3.5 %) Methane, (0.0001 - 20.9 %) Oxygen in Nitrogen.

1.3 Details of the supplier of the safety data sheet

Manufactured For: Mine Safety Appliances Company, Inc.
1202 E Sam Houston Pkwy S
Pasadena, TX 77503
Canada: Praxair Canada
1 City Centre Drive, Suite 1200
Mississauga, Ontario, L6B 1M2
1-888-257-5149

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 : Press. Gas (Comp.) H280
Aquatic Acute 3 H402

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
H402 - HARMFUL TO AQUATIC LIFE

Precautionary statements (GHS US) : P273 - Avoid release to the environment

P403 - Use and store only outdoors or in a well-ventilated place.
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.
P281 - Avoid breathing gas, vapors
CGA-P-G02 - Protect from sunlight when ambient temperature exceeds 52 C (125 F).
CGA-P-G05 - Use a back flow preventive device in the piping.
CGA-P-G06 - Close valve after each use and when empty.
CGA-P-G10 - Use only with equipment rated for cylinder pressure.

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CGA-PG11 - Never put cylinders into unventilated areas of passenger vehicles.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.
CGA-PG27 - Open valve slowly.
CGA-PG28 - Read and follow the Safety Data Sheet (SDS) before use.
CGA-MP01 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Get medical advice/attention.

2.3 Other hazards

No additional information available

2.4 Unknown acute toxicity (GHS 05)

Not applicable.

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS-CA classification

Press. Gas (Comp.) H280

Aquatic Acute 3 H402

2.2 GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms



GHS04

Signal word

Hazard statements

Precautionary statements

: Warning
: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
: HARMFUL TO AQUATIC LIFE

: Avoid release to the environment.
Use and store only outdoors or in a well-ventilated place.
Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.
Avoid breathing gas, vapors
Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).
Use a back flow preventive device in the piping.
Close valve after each use and when empty.
Use only with equipment rated for cylinder pressure.
Do not use in enclosed or unventilated areas of passenger vehicles.
Do not open valve until connected to equipment prepared for use.
Open valve slowly.
Read and follow the Safety Data Sheet (SDS) before use.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.

2.3 Other hazards

2.4 Unknown acute toxicity (GHS 05)

No data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

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Name	Product identifier	%	Common Name (Synonyms)
Nitrogen	(CAS-No.) 7727-37-9	88.3001 - 100	Nitrogen gas / NITROGEN / Nitrogen, compressed
Oxygen	(CAS-No.) 7782-44-7	0.0001 - 20.9	Oxygen (dissolved) / Oxygen gas / Oxygen, compressed / Oxygen, dissolved
Carbon dioxide	(CAS-No.) 124-38-9	0.0001 - 8.5	CARBON DIOXIDE
Methane	(CAS-No.) 74-82-8	0.0001 - 3	Marsh gas / Natural gas, refrigerated liquid / Methane, compressed
Carbon monoxide	(CAS-No.) 630-08-0	0.0001 - 3	Carbon monoxide, compressed / Compressed carbon monoxide / Carbon oxide (CO) / Carbon(I) oxide / Carbon oxide
Hydrogen sulfide	(CAS-No.) 7783-06-4	0.0001 - 0.01	Hydrogen sulfide (H ₂ S) / Hydrogen sulphide / Sulfur hydride / Sulfureted hydrogen / Dihydrogen sulphide / Hydrogensulfide

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

: 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

: Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Prolonged exposure to low concentrations of carbon monoxide can kill. Inhalation.

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

Fire hazard : Not flammable.

Explosion hazard : 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 : 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. Do not open valve until safe to do so. Remove containers from area of fire if safe to do so. Once the fire is extinguished, cylinders 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.

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

Emergency procedures : Evacuate unnecessary personnel.

6.1.2 For emergency responders

No additional information available

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.

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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 product to be released or a leak. Prematurely venting the container contents. For other precautions in using this product, see section 10.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures

Storage conditions

- Comply with applicable regulations.
- 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/provincial, 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

PTG-4117	
ACGIH	Not applicable
OSHA	Not applicable
Hydrogen sulfide (7783-06-4)	
ACGIH	ACGIH TLV-TWA (ppm) 1 ppm
ACGIH	ACGIH TLV-STEL (ppm) 5 ppm
OSHA	OSHA PEL (Ceiling) (ppm) 20 ppm
Carbon monoxide (630-08-0)	
ACGIH	ACGIH TLV-TWA (ppm) 25 ppm
OSHA	OSHA PEL (TWA) (mg/m³) 55 mg/m³
OSHA	OSHA PEL (TWA) (ppm) 50 ppm
Oxygen (7782-44-7)	
ACGIH	Not applicable

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Oxygen (7782-44-7)		Not applicable
OSHA		
Nitrogen (7727-37-9)		Not applicable
ACGIH		
OSHA		Not applicable
Carbon dioxide (124-38-9)		
ACGIH	ACGIH TLV-TWA (ppm)	5000 ppm
ACGIH	ACGIH TLV-STEL (ppm)	30000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	9000 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	5000 ppm
Methane (74-82-8)		
ACGIH	Not applicable	
OSHA	Not applicable	
Hydrogen sulfide (7783-06-4)		
ACGIH	ACGIH TLV-TWA (ppm)	1 ppm
ACGIH	ACGIH TLV-STEL (ppm)	5 ppm
OSHA	OSHA PEL (Ceiling) (ppm)	20 ppm
IDLH	US IDLH (ppm)	100 ppm
NIOSH	NIOSH REL (ceiling) (mg/m³)	15 mg/m³
NIOSH	NIOSH REL (ceiling) (ppm)	10 ppm
Alberta		
	OEL Ceiling (mg/m³)	21 mg/m³
	OEL Ceiling (ppm)	15 ppm
Alberta		
	OEL TWA (mg/m³)	14 mg/m³
	OEL TWA (ppm)	10 ppm
British Columbia		
	OEL Ceiling (ppm)	10 ppm
Manitoba		
	OEL STEL (ppm)	5 ppm
Manitoba		
	OEL TWA (ppm)	1 ppm
New Brunswick		
	OEL STEL (mg/m³)	21 mg/m³
New Brunswick		
	OEL STEL (ppm)	15 ppm
New Brunswick		
	OEL TWA (mg/m³)	14 mg/m³
New Brunswick		
	OEL TWA (ppm)	10 ppm
Newfoundland & Labrador		
	OEL STEL (ppm)	5 ppm
Newfoundland & Labrador		
	OEL TWA (ppm)	1 ppm
Nova Scotia		
	OEL STEL (ppm)	5 ppm
Nova Scotia		
	OEL TWA (ppm)	1 ppm
Nunavut		
	OEL Ceiling (mg/m³)	28 mg/m³
Nunavut		
	OEL Ceiling (ppm)	20 ppm
Nunavut		
	OEL STEL (mg/m³)	21 mg/m³
Nunavut		
	OEL STEL (ppm)	15 ppm
Nunavut		
	OEL TWA (mg/m³)	14 mg/m³
Nunavut		
	OEL TWA (ppm)	10 ppm
Northwest Territories		
	OEL STEL (ppm)	15 ppm

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Northwest Territories	OEL TWA (ppm)	10 ppm
Ontario	OEL STEL (ppm)	15 ppm
Ontario	OEL TWA (ppm)	10 ppm
Prince Edward Island	OEL STEL (ppm)	5 ppm
Prince Edward Island	OEL TWA (ppm)	1 ppm
Québec	VECD (mg/m ³)	21 mg/m ³
Québec	VECD (ppm)	15 ppm
Québec	VEMP (mg/m ³)	14 mg/m ³
Québec	VEMP (ppm)	10 ppm
Saskatchewan	OEL STEL (ppm)	15 ppm
Saskatchewan	OEL TWA (ppm)	10 ppm
Yukon	OEL STEL (mg/m ³)	27 mg/m ³
Yukon	OEL STEL (ppm)	15 ppm
Yukon	OEL TWA (mg/m ³)	15 mg/m ³
Yukon	OEL TWA (ppm)	10 ppm
Carbon monoxide (630-08-0)		
ACGIH	ACGIH TLV-TWA (ppm)	25 ppm
OSHA	OSHA PEL (TWA) (mg/m ³)	55 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	50 ppm
IDLH	US IDLH (ppm)	1200 ppm
NIOSH	NIOSH REL (TWA) (mg/m ³)	40 mg/m ³
NIOSH	NIOSH REL (TWA) (ppm)	35 ppm
NIOSH	NIOSH REL (ceiling) (mg/m ³)	229 mg/m ³
NIOSH	NIOSH REL (ceiling) (ppm)	200 ppm
Alberta	OEL TWA (mg/m ³)	29 mg/m ³
Alberta	OEL TWA (ppm)	25 ppm
British Columbia	OEL STEL (ppm)	100 ppm
British Columbia	OEL TWA (ppm)	25 ppm
Manitoba	OEL TWA (ppm)	25 ppm
New Brunswick	OEL TWA (mg/m ³)	29 mg/m ³
New Brunswick	OEL TWA (ppm)	25 ppm
Newfoundland & Labrador	OEL TWA (ppm)	25 ppm
Nova Scotia	OEL TWA (ppm)	25 ppm
Nunavut	OEL STEL (mg/m ³)	480 mg/m ³
Nunavut	OEL STEL (ppm)	190 ppm
Nunavut	OEL TWA (mg/m ³)	57 mg/m ³
Nunavut	OEL TWA (ppm)	25 ppm
Northwest Territories	OEL STEL (ppm)	190 ppm
Northwest Territories	OEL TWA (ppm)	25 ppm
Ontario	OEL TWA (ppm)	25 ppm
Prince Edward Island	OEL TWA (ppm)	25 ppm
Québec	VECD (mg/m ³)	230 mg/m ³
Québec	VECD (ppm)	200 ppm
Québec	VEMP (mg/m ³)	40 mg/m ³
Québec	VEMP (ppm)	35 ppm

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Saskatchewan	OEL STEL (ppm)	190 ppm
Saskatchewan	OEL TWA (ppm)	25 ppm
Yukon	OEL STEL (mg/m ³)	440 mg/m ³
Yukon	OEL STEL (ppm)	400 ppm
Yukon	OEL TWA (mg/m ³)	55 mg/m ³
Yukon	OEL TWA (ppm)	50 ppm
Nitrogen (7727-37-9)		
Carbon dioxide (124-38-9)		
ACGIH	ACGIH TLV-TWA (ppm)	5000 ppm
ACGIH	ACGIH TLV-STEL (ppm)	30000 ppm
OSHA	OSHA PEL (TWA) (mg/m ³)	9000 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	5000 ppm
IDLH	US IDLH (ppm)	40000 ppm
NIOSH	NIOSH REL (TWA) (mg/m ³)	9000 mg/m ³
NIOSH	NIOSH REL (TWA) (ppm)	5000 ppm
NIOSH	NIOSH REL (STEL) (mg/m ³)	54000 mg/m ³
NIOSH	NIOSH REL (STEL) (ppm)	30000 ppm
Alberta	OEL STEL (mg/m ³)	54000 mg/m ³
Alberta	OEL STEL (ppm)	30000 ppm
Alberta	OEL TWA (mg/m ³)	9000 mg/m ³
Alberta	OEL TWA (ppm)	5000 ppm
British Columbia	OEL STEL (ppm)	15000 ppm
British Columbia	OEL TWA (ppm)	5000 ppm
Manitoba	OEL STEL (ppm)	30000 ppm
Manitoba	OEL TWA (ppm)	5000 ppm
New Brunswick	OEL STEL (mg/m ³)	54000 mg/m ³
New Brunswick	OEL STEL (ppm)	30000 ppm
New Brunswick	OEL TWA (mg/m ³)	9000 mg/m ³
New Brunswick	OEL TWA (ppm)	5000 ppm
Newfoundland & Labrador	OEL STEL (ppm)	30000 ppm
Newfoundland & Labrador	OEL TWA (ppm)	5000 ppm
Nova Scotia	OEL STEL (ppm)	30000 ppm
Nova Scotia	OEL TWA (ppm)	5000 ppm
Nunavut	OEL STEL (mg/m ³)	27000 mg/m ³
Nunavut	OEL STEL (ppm)	16000 ppm
Nunavut	OEL TWA (mg/m ³)	5000 mg/m ³
Nunavut	OEL TWA (ppm)	5000 ppm
Northwest Territories	OEL STEL (ppm)	30000 ppm
Northwest Territories	OEL TWA (ppm)	5000 ppm
Ontario	OEL STEL (ppm)	30000 ppm
Ontario	OEL TWA (ppm)	5000 ppm
Prince Edward Island	OEL STEL (ppm)	30000 ppm
Prince Edward Island	OEL TWA (ppm)	5000 ppm

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Québec	VECD (mg/m³)	54000 mg/m³
Québec	VECD (ppm)	30000 ppm
Québec	VEMP (mg/m³)	9000 mg/m³
Québec	VEMP (ppm)	5000 ppm
Saskatchewan	OEL STEL (ppm)	30000 ppm
Saskatchewan	OEL TWA (ppm)	5000 ppm
Yukon	OEL STEL (mg/m³)	27000 mg/m³
Yukon	OEL STEL (ppm)	15000 ppm
Yukon	OEL TWA (mg/m³)	9000 mg/m³
Yukon	OEL TWA (ppm)	5000 ppm
Methane (74-82-8)		
British Columbia	OEL TWA (ppm)	1000 ppm
Nunavut	OEL STEL (ppm)	1250 ppm
Nunavut	OEL TWA (ppm)	1000 ppm
Northwest Territories	OEL STEL (ppm)	1250 ppm
Northwest Territories	OEL TWA (ppm)	1000 ppm
Saskatchewan	OEL STEL (ppm)	1250 ppm
Saskatchewan	OEL TWA (ppm)	1000 ppm

8.2 Exposure controls

Appropriate engineering controls

Personal protective equipment

: Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).

: Safety glasses. Gloves.



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. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

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 whenever contact with product is possible. Select per OSHA 29 CFR 1910.132, 1910.136, and 1910.138. Safety shoes: Select in accordance with the current CSA standard Z196, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines.

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).

Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators".

Thermal hazard protection

Respirators should also be approved by NIOSH and MSHA. For unknown exposures or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

: Wear cold insulating gloves when transferring or breaking transfer connections.

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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.

Relative evaporation rate (butyl acetate=1)

Relative evaporation rate (ether=1)

Melting point

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Relative evaporation rate (butyl acetate=1)

Relative evaporation rate (ether=1)

Flammability (solid, gas)

Explosion limits

Explosive properties

Oxidizing properties

Vapor pressure : None.

Relative density : Not applicable.

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

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic

Viscosity, dynamic

Other information : Not applicable.

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

None.

10.4 Conditions to avoid

None.

10.5 Incompatible materials

None.

10.6 Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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Likely routes of exposure		: Inhalation
Acute toxicity		: Not classified
PTG-4117		
LD50 oral rat		=
Hydrogen sulfide (7783-06-4)		
LC50 inhalation rat (ppm)	356 ppm/4h	
ATE US (gases)	356 ppmV/4h	
Carbon monoxide (630-08-0)		
LC50 inhalation rat (ppm)	3760 ppm/1h	
ATE US (gases)	1880 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
 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 : HARMFUL TO AQUATIC LIFE.

Hydrogen sulfide (7783-06-4)	
LC50 fish 1	0.0448 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
LC50 fish 2	0.016 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and degradability

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Persistence and degradability	No ecological damage caused by this product.
Hydrogen sulfide (7783-06-4)	
Persistence and degradability	Not applicable for inorganic gases.
Oxygen (7782-44-7)	
Persistence and degradability	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.
Carbon dioxide (124-38-9)	
Persistence and degradability	No ecological damage caused by this product.

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Methane (74-82-8)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.
12.3. Bioaccumulative potential	
PTG-4117	
Log Pow	Not applicable.
Log Pow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Hydrogen sulfide (7783-06-4)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable.
Log Pow	Not applicable.
Bioaccumulative potential	No data available.
Carbon monoxide (630-08-0)	
Log Pow	Not applicable.
Oxygen (7782-44-7)	
Log Pow	Not applicable.
Log Pow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Log Pow	Not applicable.
Log Pow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Carbon dioxide (124-38-9)	
BCF fish 1	(no bioaccumulation)
Log Pow	0.83
Log Pow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Methane (74-82-8)	
Log Pow	1.09
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4. Mobility in soil

PTG-4117	
Mobility in soil	No data available.
Hydrogen sulfide (7783-06-4)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Carbon monoxide (630-08-0)	
Mobility in soil	No data available.
Oxygen (7782-44-7)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.
Carbon dioxide (124-38-9)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.
Methane (74-82-8)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

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12.5. Other adverse effects:

- Effect on ozone layer : None.
- Effect on the global warming : Contains greenhouse gas(es) not covered by 842/2006/EC.

SECTION 13: Disposal considerations

- 13.1. Waste treatment methods : Do not attempt to dispose of residual or unused quantities. Return container to supplier.
- Produced/Packaging disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

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



- 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 9b) : 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

- Emergency Response Guide (ERG) Number : 126
- 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 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.

In accordance with TDG

Transportation of Dangerous Goods

- UN-No. (TDG) : UN1956
- Proper Shipping Name (Transportation of Dangerous Goods) : Compressed Gas, n.o.s.
- TDG Primary Hazard Classes : 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.
- Explosive Limit and Limited Quantity Index : 0.125L

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Passenger Carrying Road Vehicle or Passenger : 75 L
Carrying Railway Vehicle Index

- Transport by sea : 1956
- UN-No. (IMDG) : COMPRESSED GAS, N.O.S.
- Proper Shipping Name (IMDG) : 2 - Gases
- Class (IMDG) : 120ml
- Limited quantities (IMDG) : F-C
- EmS-No. (1) : 620
- MFAG-No : S-V
- EmS-No. (2)
- Air transport : 1956
- UN-No. (ATA) : Compressed gas, n.o.s.
- Proper Shipping Name (ATA) : 2
- Class (ATA) : 200
- Instruction "cargo" (ICAO) : 200
- Instruction "passenger" (ICAO) : FORBIDDEN
- Instruction "passenger" - Limited quantities (ICAO) : Gases under pressure/Gases nonflammable nontoxic under pressure
- Civil Aeronautics Law

SECTION 15: Regulatory information

15.1. US Federal regulations

- PTG-4117
- Listed on the United States SARA Section 302
- Subject to reporting requirements of United States SARA Section 313
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

Hydrogen sulfide (7783-06-4)

- Listed on the United States TSCA (Toxic Substances Control Act) inventory
- Listed on the United States SARA Section 302
- Subject to reporting requirements of United States SARA Section 313
- SARA Section 302 Threshold Planning Quantity (TPQ) : 500 lb
- SARA Section 313 - Emission Reporting : 1 %

Carbon monoxide (630-09-9)

- 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

Nitrogen (7727-37-9)

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

Carbon dioxide (124-38-9)

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

Methane (74-82-8)

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

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Safety Data Sheet

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15.2: International regulations

CANADA	
PTG-4117	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas
Hydrogen sulfide (7783-06-4)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Carbon monoxide (630-08-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Oxygen (7782-44-7)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class C - Oxidizing Material
Nitrogen (7727-37-9)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas
Carbon dioxide (124-38-9)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas
Methane (74-82-8)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

EU Regulations

Hydrogen sulfide (7783-06-4)	
Listed on the EEC Inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
Carbon monoxide (630-08-0)	
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)	
Nitrogen (7727-37-9)	
Listed on the EEC Inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
Carbon dioxide (124-38-9)	
Listed on the EEC Inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
Methane (74-82-8)	
Listed on the EEC Inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	

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

Press. Gas (Comp.) H280

Classification according to Directive 67/548/EEC [DSD] or 1900/43/EC [DfD]

No additional information available

National regulations

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Safety Data Sheet

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication. Prepared for Canada according to the Hazardous Products Regulation (February 11, 2015).

15.2: International regulations

Hydrogen sulfide (7783-06-4)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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 the Korean ECL (Industrial Safety and Health Law)	
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)	
Listed on INSQ (Mexican National Inventory of Chemical Substances)	
Listed on the TCSI (Taiwan Chemical Substance Inventory)	
Carbon monoxide (630-08-0)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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 (Industrial Safety and Health Law)	
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)	
Listed on INSQ (Mexican National Inventory of Chemical Substances)	
Listed on the TCSI (Taiwan Chemical Substance Inventory)	
Oxygen (7782-44-7)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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 INSQ (Mexican National Inventory of Chemical Substances)	
Listed on the TCSI (Taiwan Chemical Substance Inventory)	
Nitrogen (7727-37-9)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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 INSQ (Mexican National Inventory of Chemical Substances)	
Carbon dioxide (124-38-9)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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)	
Listed on INSQ (Mexican National Inventory of Chemical Substances)	
Listed on the TCSI (Taiwan Chemical Substance Inventory)	
Methane (74-82-8)	
Listed on the ACS (Australian Inventory of Chemical Substances)	
Listed on the 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 INSQ (Mexican National Inventory of Chemical Substances)	
Listed on the TCSI (Taiwan Chemical Substance Inventory)	

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15.3: U.S. State regulations

PTG-4117		U.S. - California - Proposition 65 - Carcinogens	No
List			
U.S. - California - Proposition 65 - Developmental Toxicity		Yes	
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		No	
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		No	

Carbon monoxide (630-08-9)			
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	Yes	No	No

Hydrogen sulfide (7783-06-4)	
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	

Carbon monoxide (630-08-9)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - 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	

Carbon dioxide (124-38-9)	
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	

Methane (74-82-8)	
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

Revision date : 09/25/2019

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Safety Data Sheet

The SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication, Prepared for Canada according to the Hazardous Products Regulation (February 11, 2015).

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 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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MSA Part Numbers: 10058022, 10103262, 10104621, 10172331