

SECTION: 1. Product and company identification

1.1. Product identifier

Product name : PTG-4521
 Formula : 5% Fluorine in Nitrogen

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

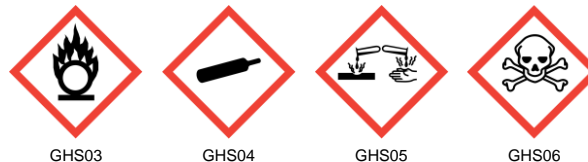
Classification (GHS-AU)

Ox. Gas 1 H270
 Press. Gas (Comp.) H280
 Acute Tox. 3 (Inhalation:gas) H331
 Skin Corr. 1A H314
 Eye Dam. 1 H318
 Simple asphyxiant SIAS

2.2. Label elements

GHS AU labelling

Hazard pictograms (GHS AU) :



Signal word (GHS AU) :

DANGER

Hazard statements (GHS AU) :

H270 - MAY CAUSE OR INTENSIFY FIRE; OXIDIZER
 H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
 H314 - CAUSES SEVERE SKIN BURNS AND EYE DAMAGE
 H318 - CAUSES SERIOUS EYE DAMAGE
 H331 - TOXIC IF INHALED

Precautionary statements (GHS AU) :

- P220 - Keep/Store away from clothing/.../combustible materials
- P244 - Keep reduction valves/valves and fittings free from oil and grease
- P260 - Do not breathe gas/vapors
- P261 - Avoid breathing gas, vapors
- P264 - Wash exposed skin thoroughly after handling
- P271 - Use and store only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P303+P361+P353 - IF ON SKIN OR (HAIR): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 - Immediately call a poison center or doctor/physician
- P311 - Call a poison center/doctor/...
- P321 - Specific treatment (see First aid measures on this label)
- P363 - Wash contaminated clothing before reuse.
- P370+P376 - IN CASE OF FIRE: Stop leak if safe to do so
- P403 - Use and store only outdoors or in a well-ventilated place.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed
- P405 - Store locked up
- P410+P403 - Protect from sunlight. Store in a well-ventilated place.
- P501 - Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

2.3. Other hazards

Other hazards which do not result in classification : Asphyxiant in high concentrations.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%
Nitrogen	(CAS No) 7727-37-9	95
Fluorine	(CAS No) 7782-41-4	5

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

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. 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.

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

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

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

Nitrogen (7727-37-9)		
ACGIH	Not established	
USA OSHA	Not established	
Fluorine (7782-41-4)		
ACGIH	ACGIH OEL TWA	0.1 ppm
ACGIH	ACGIH OEL C	0.5 ppm
USA OSHA	OSHA PEL TWA	0.2 mg/m ³
USA OSHA	OSHA PEL TWA	0.1 ppm
AU SWA TWA PPM	OES TWA	1 ppm
AU SWA TWA MGM3	OES TWA	1.6 mg/m ³
AU STEL PPM	OES STEL	2 ppm
AU SWA STEL MGM3	OES STEL	1.6 mg/m ³

8.2. Exposure controls

Appropriate engineering controls : Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when oxidizing gases may be released. Provide adequate general and local exhaust ventilation.

Eye protection : Provide readily accessible eye wash stations and safety showers. Wear safety glasses with side shields.

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.

Other information : Consider the use of flame resistant safety clothing.

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)	: 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	: 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
Partition coefficient n-octanol/water (Log Pow)	: Not applicable.
Partition coefficient n-octanol/water (Log Kow)	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable.
Oxidizing properties	: Oxidizer.
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

Violently oxidizes organic material.

10.4. Conditions to avoid

Avoid moisture in installation systems.

10.5. Incompatible materials

May react violently with combustible materials. May react violently with reducing agents.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

PTG-4521

ATE US (gases)	1850 ppmV/4h
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Fluorine (7782-41-4)

LC50 inhalation rat (ppm)	185 ppm/1h
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Fluorine (7782-41-4)	
ATE US (gases)	92.5 ppmV/4h

Skin corrosion/irritation	: CAUSES SEVERE SKIN BURNS. pH: Not applicable.
Serious eye damage/irritation	: CAUSES SERIOUS EYE DAMAGE. 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 applicable

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

PTG-4521	
Persistence and degradability	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.
Fluorine (7782-41-4)	
Persistence and degradability	Not applicable for inorganic gases.

12.3. Bioaccumulative potential

PTG-4521	
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.
Nitrogen (7727-37-9)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable for inorganic gases.
Partition coefficient n-octanol/water (Log Kow)	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Fluorine (7782-41-4)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable.

12.4. Mobility in soil

PTG-4521	
Mobility in soil	No data available.
Nitrogen (7727-37-9)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.
Fluorine (7782-41-4)	
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

Other adverse effects : May cause pH changes in aqueous ecological systems.
 Effect on ozone layer : None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

Transport of Australian Dangerous Goods

In accordance with DOT

Transport document description : UN3306 Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D), 2.3
 UN-No.(DOT) : UN3306
 Proper Shipping Name (DOT) : Compressed gas, toxic, oxidizing, corrosive, n.o.s.
 Inhalation Hazard Zone D
 Hazard labels (DOT) : 2.3 - Poison gas
 5.1 - Oxidizer
 8 - Corrosive



DOT Symbols : G - Identifies proper shipping name (PSN) requiring the addition of technical name(s) in parentheses following the PSN, I - Proper shipping name appropriate for international and domestic transportation
 DOT Special Provisions (49 CFR 172.102) : 4 - This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone D (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

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) : 3306
 Proper Shipping Name (IMDG) : COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.
 Class (IMDG) : 2.3 - Toxic gases

Air transport

UN-No. (IATA) : 3306
 Proper Shipping Name (IATA) : COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.
 Class (IATA) : 2 - Gases

SECTION 15: Regulatory information

15.1. US Federal regulations



PTG-4521

Safety Data Sheet PTG-4521

Prepared in accordance with the model Work Health and Safety Regulations

Date of issue: 07/07/2021 Revision date: 08/10/2024 Version: 1.1

Fluorine (7782-41-4)

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

CERCLA RQ	10 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 313 - Emission Reporting	1 %

15.2. International regulations

CANADA

Nitrogen, Medipure Liquid Nitrogen (7727-37-9)>

Listed on the Canadian DSL (Domestic Substances List)

Fluorine (7782-41-4)>

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Fluorine (7782-41-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Fluorine (7782-41-4)

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)
 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)

15.3. US State regulations

PTG-4521()

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

Nitrogen, Medipure Liquid Nitrogen (7727-37-9)

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	Non-significant risk level (NSRL)
No	No	No	No	

Fluorine (7782-41-4)

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	

Nitrogen, Medipure Liquid 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

Fluorine (7782-41-4)

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

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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