

SECTION: 1. Product and company identification

1.1. Product identifier

Product form : Substance
 Substance name : PTG-4083
 Product code : Nitrous Oxide
 Formula : N2O

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

Manufactured For:	By:
Scientific Gas Australia Pty Ltd.	PortaGas (Praxair, Inc.)
Unit 10, 12 Anderson Street	1202 E Sam Houston Pkwy S
Banksmeadow NSW, 2019 - Australia	Pasadena, TX 77503
T PH 1300 880 531	T 281-928-6477

1.4. Emergency telephone number

Emergency number : Onsite Emergencies: 1-800-645-4633; Australian Poison Information Centre: 13 11 26;
 Australian Fire Brigade: 000
 CHEMTREC: USA 1-800-424-9300, International 001-703-527-3887 (Collect calls accepted, contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

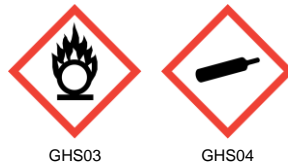
Classification (GHS-AU)

Ox. Gas 1 H270
 Press. Gas (Liq.) H280

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

Precautionary statements (GHS-AU) :

P220 - Keep/Store away from combustible materials, clothing
 P244 - Keep reduction valves/valves and fittings free from oil and grease
 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.
 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-MP01 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.
 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.
 P261 - Avoid breathing gas, vapors
 CGA-PG20+CGA-PG10 - Use only with equipment of compatible materials of construction and

rated for cylinder pressure.

2.3. Other hazards

Other hazards not contributing to the classification : Asphyxiant in high concentrations.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name : PTG-4083

Name	Product identifier	%
Nitrous oxide	(CAS No) 10024-97-2	< 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 skin contact : The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

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

No additional information available

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- HazChem code : 2P.

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 their provincial and local fire regulations.
- 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.).



PTG-4083

Safety Data Sheet PTG-4083

Prepared in accordance with the model Work Health and Safety Regulations

Date of issue: 08/12/2015 Revision date: 09/25/2019 Version: 1.1

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.

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

Nitrous oxide (10024-97-2)		
ACGIH	ACGIH TLV-TWA (ppm)	50 ppm
AU SWA TWA PPM	TWA (ppm)	25 ppm
AU SWA TWA MGM3	TWA (mg/m ³)	45 mg/m ³
AU SWA STEL MGM3	STEL (mg/m ³)	45 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.
Personal protective equipment	: 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 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.
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
Appearance	: Colorless, non-flammable gas.
Molecular mass	: 44 g/mol
Color	: Colorless
Odor	: No data available
Odor threshold	: Odor threshold is subjective and inadequate to warn for overexposure.
pH	: Not applicable.
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -90.81 °C
Freezing point	: 182.34 K
Boiling point	: -88.5 °C
Flash point	: Not applicable.
Critical temperature	: 309.55 K
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not applicable.
Critical pressure	: 7255 kPa
Relative vapor density at 20 °C	: No data available
Relative density	: 1.2
Density	: 0.785 g/cm ³ (at 20 °C)
Relative gas density	: 1.5
Solubility	: Water: No data available

Log Pow : Not applicable.
 Log Kow : Not applicable.
 Viscosity, kinematic : Not applicable.
 Viscosity, dynamic : Not applicable.
 Explosive properties : Not applicable.
 Oxidizing properties : Oxidizer.
 Explosion limits : Non flammable.

9.2. Other information

Gas group : Liquefied gas
 Additional information : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

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

No additional information available

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

Nitrous oxide (10024-97-2)	
LC50 inhalation rat (ppm)	> 250 ppm/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 : No known ecological damage caused by this product.

12.2. Persistence and degradability

PTG-4083	
Persistence and degradability	No ecological damage caused by this product.
Nitrous oxide (10024-97-2)	
Persistence and degradability	Not applicable for inorganic gases.

12.3. Bioaccumulative potential

PTG-4083	
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
Nitrous oxide (10024-97-2)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No data available.

12.4. Mobility in soil

PTG-4083	
Mobility in soil	No data available.
Nitrous oxide (10024-97-2)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

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) : UN 1070
 Proper Shipping Name (ADG) : NITROUS OXIDE
 Class (ADG) : 2.2 - 2.2 - Class 2.2 - Non-flammable compressed gas
 Danger labels (ADG) : 2.2 - Non-flammable compressed gas



In accordance with DOT

Transport document description : UN1070 Nitrous Oxide, 2.2
 UN-No.(DOT) : UN1070
 Proper Shipping Name (DOT) : Nitrous Oxide
 Class (DOT) : 2.2 - 2.2 - Class 2.2 - Non-flammable compressed gas

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



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

DOT Special Provisions (49 CFR 172.102) : A14 - This material is not authorized to be transported as a limited quantity or consumer commodity in accordance with 173.306 of this subchapter when transported aboard an aircraft.

Additional information

HazChem code : 2P.

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) : 1070

Proper Shipping Name (IMDG) : Nitrous Oxide

Class (IMDG) : 2.2 - Non-flammable, non-toxic gases

Subsidiary risks (IMDG) : 5.1

Limited quantities (IMDG) : None

EmS-No. (1) : F-C

EmS-No. (2) : S-W

Air transport

UN-No. (IATA) : 1070

Proper Shipping Name (IATA) : Nitrous oxide

Class (IATA) : 2

Subsidiary risk (IATA) : 5.1

Instruction "cargo" (ICAO) : 200

Instruction "passenger" (ICAO) : 200

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

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

Nitrous oxide (10024-97-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

15.2.2. National regulations

No additional information available

15.3. US State regulations

PTG-4083()	
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

Nitrous oxide (10024-97-2)				
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	Yes	Yes	No	

Nitrous oxide (10024-97-2)
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.

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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