

### SECTION 1: Product and company identification

#### 1.1. Product identifier

Product form : Mixture  
 Product name : PTG-4354  
 Formula : (0.1 -1 %) Hydrogen sulfide in Hydrogen

#### 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
Bankmeadow 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)

Flam. Gas 1 H220  
 Press. Gas (Comp.) H280  
 Aquatic Acute 2 H401

#### 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  
 H332 - HARMFUL IF INHALED  
 H401 - TOXIC TO AQUATIC LIFE

Precautionary statements (GHS-AU) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273 - Avoid release to the environment.  
 P377 - LEAKING GAS FIRE: Do not extinguish, unless leak can be stopped safely.  
 P381 - Eliminate all ignition sources if safe to do so.  
 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.  
 CGA-PG27 - Read and follow the Safety Data Sheet (SDS) before use.  
 CGA-PG21 - Open valve slowly.  
 CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F).  
 CGA-PG05 - Use a back flow preventive device in the piping.  
 CGA-PG06 - Close valve after each use and when empty.  
 CGA-PG10 - Use only with equipment rated for cylinder pressure.

CGA-PG11 - Never put cylinders into unventilated areas of passenger vehicles.  
CGA-PG12 - Do not open valve until connected to equipment prepared for use.

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

No data available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%
Hydrogen	(CAS No) 1333-74-0	99 - 99.99
Hydrogen sulfide	(CAS No) 7783-06-4	0.1 - 1

## 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

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

### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : **EXTREMELY FLAMMABLE GAS.**
- Explosion hazard : **EXTREMELY FLAMMABLE GAS.** Forms explosive mixtures with air and oxidizing agents.
- 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 : **DANGER! FLAMMABLE, HIGH PRESSURE GAS..**
- 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

General measures : If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

#### 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

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 : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment.

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 only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

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

Hydrogen sulfide (7783-06-4)		
ACGIH	ACGIH TLV-TWA (ppm)	1 ppm
ACGIH	ACGIH TLV-STEL (ppm)	5 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	20 ppm
AU SWA TWA PPM	TWA (ppm)	10 ppm
AU SWA TWA MGM3	TWA (mg/m <sup>3</sup> )	14 mg/m <sup>3</sup>
AU STEL PPM	STEL (ppm)	15 ppm
AU SWA STEL MGM3	STEL (mg/m <sup>3</sup> )	14 mg/m <sup>3</sup>
Hydrogen (1333-74-0)		
ACGIH	Remark (ACGIH)	Simple asphyxiant
USA OSHA	Not established	

### 8.2. Exposure controls

Appropriate engineering controls : Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): **Inadequate - Use only in a closed system.** Use explosion proof equipment and lighting. Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).

Personal protective equipment : Gloves. Safety glasses.



Eye protection : 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.
- 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
- 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 (solid, gas) : 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
- Log Pow : Not applicable.
- Log Kow : Not applicable.
- Viscosity, kinematic : Not applicable.
- Viscosity, dynamic : Not applicable.
- Explosive properties : Not applicable.
- Oxidizing properties : None.
- Explosion limits : No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No additional information available

#### 10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

#### 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

<b>Hydrogen sulfide (7783-06-4)</b>	
LC50 inhalation rat (ppm)	356 ppm/4h
ATE US (gases)	356 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 : VERY TOXIC TO AQUATIC LIFE.

<b>Hydrogen sulfide (7783-06-4)</b>	
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**

<b>PTG-4354</b>	
Persistence and degradability	No ecological damage caused by this product.
<b>Hydrogen sulfide (7783-06-4)</b>	
Persistence and degradability	Not applicable for inorganic gases.
<b>Hydrogen (1333-74-0)</b>	
Persistence and degradability	No ecological damage caused by this product.

**12.3. Bioaccumulative potential**

<b>PTG-4354</b>	
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
<b>Hydrogen sulfide (7783-06-4)</b>	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No data available.
<b>Hydrogen (1333-74-0)</b>	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

### 12.4. Mobility in soil

PTG-4354	
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.
Hydrogen (1333-74-0)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.

### 12.5. Other adverse effects

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

UN-No. (ADG) : UN1954  
 Proper Shipping Name (ADG) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
 Class (ADG) : 2.1 - Class 2.1 - Flammable gas  
 Danger labels (ADG) : 2.1 - Flammable gases



Special provision (ADG) : 274

### In accordance with DOT

Transport document description : UN1954 Compressed gas, flammable, n.o.s., 2.1  
 UN-No.(DOT) : UN1954  
 Proper Shipping Name (DOT) : Compressed gas, flammable, n.o.s.  
 Class (DOT) : 2.1 - Class 2.1 - Flammable gas  
 Hazard labels (DOT) : 2.1 - Flammable gas



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

### Additional information

Emergency Response Guide (ERG) Number : 126  
 HazChem code : 2TE.  
 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) : 1954  
 Proper Shipping Name (IMDG) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
 Class (IMDG) : 2.1 - Flammable gases  
 Limited quantities (IMDG) : 120ml  
 EmS-No. (1) : F-C  
 MFAG-No : 620  
 EmS-No. (2) : S-V

### Air transport

UN-No. (IATA) : 1954  
 Proper Shipping Name (IATA) : COMPRESSED GAS, FLAMMABLE, N.O.S.  
 Class (IATA) : 2  
 Instruction "cargo" (ICAO) : 200  
 Instruction "passenger" (ICAO) : 200  
 Instruction "passenger" - Limited quantities (ICAO) : FORBIDDEN

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

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 %

### 15.2. International regulations

#### CANADA

Hydrogen sulfide (7783-06-4)
Listed on the Canadian DSL (Domestic Substances List)

Hydrogen (1333-74-0)
Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

Hydrogen sulfide (7783-06-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### 15.2.2. National regulations





# PTG-4354

## Safety Data Sheet PTG-4354

Prepared in accordance with the model Work Health and Safety Regulations

Date of issue: 02/28/2017 Revision date: 09/25/2019 Version: 1.1

### Hydrogen sulfide (7783-06-4)

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 Japanese ENCS (Existing & New Chemical Substances) inventory  
 Listed on the Japanese ISHL (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)

### 15.3. US State regulations

#### PTG-4354()

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

### Hydrogen sulfide (7783-06-4)

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	

### Hydrogen (1333-74-0)

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	

### 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

### Hydrogen (1333-74-0)

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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*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*