Precision Gas Products Inc.

2455 Cawthra Road, Unit 21 Mississauga, Ontario L5A 3P1
Tel: (905)-949-2626/1-888-730-8196 Fax: (905)-949-2688
Emergency Contact: Chemtrec (800) 424-9300

Three Part Mix, 5 to 100 ppm Hydrogen Sulfide, 0.5% to 2.5% Methane, 2% to 23% Oxygen in Nitrogen Balance Gas

MATERIAL SAFETY DATA SHEET

Identification

Revision Date 01-01-15

Products Name: 5 to 100 PPM Hydrogen Sulfide, 0.5% 10 2.5% Methane, Oxygen 2% to 23% in Nitrogen
Chemical Family: Gas Mixture
Chemical formula: H2S, CH4, O2 in N2
Synonyms: Calibration Gas, Bump Gas, Cal Gas Mixture, Three Part Mix
MSDS identification Code/ Number: MSDS 105MX197

Composition/ Information on Ingredients

Ingredient Name	Exposure Limits	Concentration Percent by Weight
Hydrogen Sulfide CAS Number 7783-06-4	ACGIH TWA: 10 PPM ACHIH STEL: 15 PPM OSHA PEL Ceiling: 20 PPM	0.0005% to 0.01% 5ppm to 100ppm
Methane CAS Number 00749-82-8	None Simple asphyxiant; Maintain oxygen levels above 19.5% at sea level	0.5% to 2.5%
Oxygen CAS Number 7782-44-7	None	2.0% to 23%
Nitrogen CAS Number 7727-37-9	None Simple asphyxiant. Maintain oxygen levels above 19.5% at sea level.	74.5% to 97.5%

Hazard Identification

No data given

First Aid Measures

Eyes: *Person with potential exposure to Hydrogen Sulfide should not wear contact lenses*. In case of eye contact, immediately flush with low pressure, cool water for at least 15 minutes, opening eyelids to ensure flushing. Get immediate medical attention.

Skin: Flush affected area with copious quantities of water. Remove contaminated clothing as rapidly as possible.

Ingestion: Treat in a manner similar to inhalation exposure. Seek medical attention as soon as possible.

Inhalation Exposure: Prompt medical attention is mandatory in all cases of overexposure. Rescue personnel should be equipped with self – contained breathing apparatus. Quick removal from the contaminated are is most important. Conscious persons should be moved to an uncontaminated area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area, given artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive. Keep the victim warm and calm.

Fire Fighting Measures

Flammable Properties
Flash Point: N/A Gas

	Hydrogen Sulfide	Methane
Lower Explosive Limit (%)	4	5
Upper Explosive Limit (%)	74.5	15

- Fire and Explosion Hazards: None
- Extinguishing Media: Use any extinguishing media suitable for the surrounding fire. Use water spray to cool fire-exposed container.
- Fire Fighting Instructions: If possible, stop the flow of gas that is supporting the fire.
- Electrical Classification: Nonhazardous

Accidental Release Measures

Evacuate all personnel from affected areas. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC location for emergency assistance.

Handling and Storage

- Handling and Storage Precautions

Use only in well – ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the system**.**

Protect cylinders from physical damage. Store in cool, dry, well – ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a "first in, first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area. Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, asphyxiation or toxic exposure.

Exposure Controls/Personal Protection

Engineering Control: Use local exhaust to reduce concentrations to within current exposure limits. A laboratory type hood is suitable for handling small or limited quantities.

Eye / Face Protection: Safety goggles or glasses.

Skin Protection: Protective gloves: neoprene, butyl rubber, PVC, polyethylene

Respiratory Protection: A type C respirator with full face piece equipped with an escape bottle or self-contained breathing apparatus should be available for emergency use.

Other/General Protection: Safety shoes, safety shower, eyewash fountain.

Physical & Chemical Properties

Appearance: A colorless, nonflammable gas.
Boiling Point: -317.8°F -194.3°C
Odor: A rotten egg odor
Vapor Pressure: Above critical temperature.
Vapor Density (Air=1): Not determined
Solubility (H20): Slightly.

Stability & Reactivity

Stability: Stable

Incompatible Materials: All flammable materials. Hydrogen Sulfide will react with brass materials with copper sulfide as a reaction product.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Oxides of sulfur.

Toxicological Information

Eye Effects
Low concentrations of hydrogen sulfide will generally cause irritation to the conjunctiva. Repeated exposure to low concentrations is reported to cause conjunctivitis, photophobia, corneal bullae, tearing, pain and blurred vision.

Skin Effects
May irritate the skin upon contact.

Acute Oral Effects
Ingestion is considered unlikely. However, hydrogen sulfide will cause irritation of mucous membranes, causing a burning feeling with excess salivation likely. Irritation of the gastrointestinal tract may also occur.

Acute Inhalation Effects
Continuous exposure to low (15 to 50 ppm) concentrations of hydrogen sulfide will generally cause irritation to mucous membranes, and may also cause headache, dizziness or nausea. Olfactory fatigue or paralysis of smell is also possible; thus detection of hydrogen sulfide by its odor is not considered adequate. Higher concentrations (200 to 300 ppm) may result in respiratory arrest leading to coma or unconsciousness. Exposures for more than 30 minutes at concentrations greater than 700 ppm have been fatal.

Hydrogen sulfide should be regarded as highly toxic. Toxicologically, it reacts with enzymes in the bloodstream and inhibits cellular respiration resulting in pulmonary paralysis, sudden collapse and death.

Miscellaneous Toxicological Information
Carcinogenicity – NTP: No IARC: No OSHA: No

Medical Conditions Aggravated by Exposure
Blood Disorders

Ecological Information

Other Environmental Information: This product does contains hydrogen sulfide which is regulated on the U.S EPA List of Toxic Chemicals (40CFR 372), and is therefore subject to release reporting under Section 313 of EPCRA/SARA Title III.

Hydrogen Sulfide	CERCLA RQ:	100 pounds
	SARA TPQ:	500 pounds
	SARA de minimis Concentration:	1%

Disposal Considerations

Do not attempt to dispose of waste or unused quantities. Return in the shipping container, *properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place* to Precision Gas Products for proper disposal. Non-refillable containers should be vented in a well ventilated area then disposed of in compliance with local regulations.

Transport Information

Proper Shipping Name: Compressed Gas, N.O.S (Nitrogen, Hydrogen Sulfide)
Hazardous Class: 2.2
CT (DOT) Identification Number: UN 1956
CT (DOT) Shipping Label: Nonflammable gas

Regulatory Information

SARA Title III – Hazard Class: Acute Health Hazard
Sudden Release of Pressure Hazard
Fire Hazard
Chronic Health Hazard

Other Information

Hazard Ratings:	Health:	4
	Fire:	0
	Reactivity:	3
	Special:	None

MSDS Identification Code / Number: MSDS 105MX197

Reference Documentation

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipments of a compressed gas cylinder, which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

Disclaimer of Expressed & Implied Warranties

Although responsible care has been taken in the preparation of the document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of this use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).