

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/29/2016

Reviewed on 08/29/2016

### 1 Identification

· **Product Identifier**

· **Trade name: Precision Calibration Gas Mixture**

· **Product Number:** G-3615

· **Relevant identified uses of the substance or mixture and uses advised against:**

Used for calibration of gas measuring devices. Not suitable for human consumption.

· **Product Description** Calibration gas mixture consisting of Hydrogen Sulfide, Oxygen and Nitrogen.

· **Application of the substance / the mixture:** Pressurized gas, requires appropriate regulator to dispense.

· **Details of the Supplier of the Safety Data Sheet:**

· **Manufacturer/Supplier:**

Gasco Affiliates, LLC

320 Scarlett Blvd.

Oldsmar, FL 34677

TELEPHONE NUMBER: (800) 910-0051

FAX NUMBER: (866) 755-8920

E-MAIL: info@gascogas.com

· **Emergency telephone number:**

Inside the US: 1-800-424-9300 (CHEMTREC, 24 hours)

Outside the US: 1-703-527-3887 (CHEMTREC, 24 hours)

### 2 Hazard(s) Identification

· **Classification of the substance or mixture:**



GHS04 Gas cylinder

Press. Gas      H280 Contains gas under pressure; may explode if heated.



GHS06 Skull and crossbones

Acute Tox. 2      H330 Fatal if inhaled.

Aquatic Acute 3      H402 Harmful to aquatic life.

Simple Asphyxiant      May displace oxygen and cause rapid suffocation.

· **Label elements:**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**



GHS04    GHS06

· **Signal word:** Danger

· **Hazard-determining components of labeling:**

Hydrogen Sulfide

· **Hazard statements:**

H280 Contains gas under pressure; may explode if heated.

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H330 Fatal if inhaled.

H402 Harmful to aquatic life.

May displace oxygen and cause rapid suffocation.

**Precautionary statements:**

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P284 [In case of inadequate ventilation] wear respiratory protection.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P310 Immediately call a POISON CENTER/doctor.

P320 Specific treatment is urgent (see supplementary first aid instructions on this Safety Data Sheet).

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P405 Store locked up.

P410+P403 Protect from sunlight. Store in a well-ventilated place.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Unknown acute toxicity:**

99.5 % of the mixture consists of component(s) of unknown toxicity.

**Classification system:****NFPA ratings (scale 0 - 4)**

Health = 4

Fire = 0

Reactivity = 0

**HMS-ratings (scale 0 - 4)**

Health = 4

Fire = 0

Reactivity = 0

**Hazard(s) not otherwise classified (HNOC):** None known**3 Composition/Information on Ingredients****Chemical characterization: Mixtures****Description:** Mixture of substances listed below with non-hazardous additions.**Dangerous Components:**

CAS: 7727-37-9 RTECS: QW 9700000	Nitrogen ⚠ Press. Gas, H280; Simple Asphyxiant	78.6 - 91.9899%
CAS: 7783-06-4	Hydrogen Sulfide ⚠ Flam. Gas 1, H220; ⚠ Acute Tox. 2, H330; ⚠ Aquatic Acute 1, H400; Press. Gas, H280	0.0101 - 0.5%
CAS: 7782-44-7	Oxygen ⚠ Oxid. Gas 1, H270; ⚠ Press. Gas, H280	8 - 20.9%

**4 First-Aid Measures****Description of first aid measures:****After inhalation:**

Get medical attention immediately. Move person to fresh air. If it is expected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

In case of unconsciousness place patient stably in side position for transportation.

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- **After skin contact:**

Generally the product does not irritate the skin.

In cases of contact with liquified material, frostbite may occur. Immerse frostbite in cool-warm water and seek medical attention.

- **After eye contact:**

Not anticipated under normal use.

If irritation occurs thoroughly wash the exposed area and discontinue use. Seek medical attention if any adverse effect occurs.

- **After swallowing:** Not a normal route of entry.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

### 5 Fire-Fighting Measures

- **Extinguishing media:**

- **Suitable extinguishing agents:**

Use fire fighting measures that suit the environment.

Use water spray to cool fire-exposed containers.

- **Special hazards arising from the substance or mixture:**

Closed containers may explode when exposed to extreme heat.

If incinerated, product will release the following toxic fumes: Oxides of Nitrogen (NOx) and Sulfur.

- **Advice for firefighters:**

This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire. Firefighters should be aware of the presence of Hydrogen Sulfide in this gas mixture, which can cause significant health effects.

- **Protective equipment:**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

### 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**

Wear protective equipment. Keep unprotected persons away.

Keep away from ignition sources

Keep people at a distance and stay upwind.

In a confined area, NIOSH approved respiratory protection may be required.

Treat any fumes as toxic.

- **Environmental precautions:** Inform authorities in case of gas release.

- **Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

- **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and Storage

- **Handling**

- **Precautions for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

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Open and handle receptacle with care.

Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms due to the potential for oxygen deficiency (simple asphyxiation). Do not attempt to adjust, repair or in any other way modify the cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

- **Information about protection against explosions and fires:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C, i.e. electric lights. Do not pierce or burn, even after use.

Keep protective respiratory device available.

Do not cut, grind or weld on container that contains or contained product.

Do not spray on a naked flame or any incandescent material.

- **Conditions for safe storage, including any incompatibilities:**

Store away from strong oxidizing agents, strong bases, phosphorous, organic materials and powdered metals.

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

Cylinders should be firmly secured to prevent falling or being knocked over. Cylinders must be protected from the environment, and preferably kept at room temperature. Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a "first-on, first-out" inventory system to prevent full containers from being stored for long periods of time.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

- **Specific end use(s):** No further relevant information available.

### 8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.

- **Control parameters:**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

- **Components with occupational exposure limits:**

#### 7727-37-9 Nitrogen

TLV | withdrawn TLV, see App. F; simple asphyxiant

#### 7783-06-4 Hydrogen Sulfide

PEL | Ceiling limit value: 20; 50\* ppm  
\*10-min peak; once per 8-hr shift

REL | Ceiling limit value: 15\* mg/m<sup>3</sup>, 10\* ppm  
\*10-min

TLV | Short-term value: 7 mg/m<sup>3</sup>, 5 ppm  
Long-term value: 1.4 mg/m<sup>3</sup>, 1 ppm

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

- **Exposure controls:**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing and wash before reuse.

Wash hands before breaks and at the end of work.

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Store protective clothing separately.

· **Breathing equipment:**



Suitable respiratory protective device recommended.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

· **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material:**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:**



Protective work clothing

## 9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:**

Gaseous

**Color:**

Clear, colorless

· **Odor:**

Rotten

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

**Melting point/Melting range:**

Not determined.

**Boiling point/Boiling range:**

Not determined.

· **Flash point:**

Not determined.

· **Flammability (solid, gaseous):**

Not determined.

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- **Ignition temperature:**
  - **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **Danger of explosion:** Not determined.
- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Vapor pressure:** Not determined.
- **Density:**
  - **Relative density:** Not determined.
  - **Vapor density:** Not determined.
  - **Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with:**
  - **Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - **Dynamic:** Not determined.
  - **Kinematic:** Not determined.
- **Solvent content:**
  - **Organic solvents:** 0.0 %
- **Other information:** No further relevant information available.

**10 Stability and Reactivity**

- **Reactivity:** Stable under normal conditions.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat, flame and ignition sources.
- **Incompatible materials:** Strong oxidizing agents, strong bases, phosphorous, organic materials and powdered metals.
- **Hazardous decomposition products:** Oxides of Nitrogen (NOx) and Sulfur.

**11 Toxicological Information**

- **Information on toxicological effects:**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

**7783-06-4 Hydrogen Sulfide**

Inhalative	LC50/4 h	634 mg/l (mouse) 444 mg/l (rat)
	LC50/96 hours	0.016 mg/l (Pimephales)

- **Primary irritant effect:**
- **On the skin:** No irritating effect.
- **On the eye:** No irritating effect.

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**Trade name: Precision Calibration Gas Mixture****· Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

**· Carcinogenic categories:****· IARC (International Agency for Research on Cancer):**

- Group 1 - Carcinogenic to humans
- Group 2A - Probably carcinogenic to humans
- Group 2B - Possibly carcinogenic to humans
- Group 3 - Not classifiable as to its carcinogenicity to humans
- Group 4 - Probably not carcinogenic to humans

None of the ingredients are listed.

**· NTP (National Toxicology Program):**

None of the ingredients are listed.

**· OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

**12 Ecological Information**

- **Toxicity:** The hazards for the aquatic environment are unknown.
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

**13 Disposal Considerations**

- **Waste treatment methods:**
- **Recommendation:**  
Release all residual gas pressure in a well ventilated area. Verify the cylinder is completely empty (0 PSIG). Remove or cover any hazard labels. Return empty supplier for recycling.  
NOTE: Check with the local waste authority before placing any gas cylinder into a waste container for pickup. GASCO encourages the consumer to return all cylinders.
- **Waste disposal key:** The U.S. EPA has not published waste numbers for this product's components.
- **Uncleaned packagings**
- **Recommendation:** Return cylinder and unused product to supplier.

**\*14 Transport Information**

- **UN-Number:**
- **DOT, ADR, IMDG, IATA** UN1956
- **UN proper shipping name:**
- **DOT** Compressed gas, n.o.s.
- **ADR** UN1956 Compressed gas, n.o.s.
- **IMDG, IATA** COMPRESSED GAS, N.O.S.

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**Trade name: Precision Calibration Gas Mixture**· **Transport hazard class(es):**· **DOT**

· **Class:** 2 Gases  
 · **Label:** 2.2

· **ADR**

· **Class:** 2 1A Gases  
 · **Label:** 2.2

· **IMDG, IATA**

· **Class:** 2 Gases  
 · **Label:** 2.2  
 · **Packing group:** -  
 · **DOT, ADR, IMDG, IATA** Non-Regulated Material  
 · **Environmental hazards:** Not applicable.  
 · **Special precautions for user:** Warning: Gases  
 · **Danger code (Kemler):** -  
 · **EMS Number:** F-C,S-V  
 · **Stowage Category** A  
 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

· **Transport/Additional information:**· **DOT**

· **Quantity limitations:** On passenger aircraft/rail: 75 kg  
 On cargo aircraft only: 150 kg

· **ADR**

· **Excepted quantities (EQ):** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

· **IMDG**

· **Limited quantities (LQ):** 120 ml  
 · **Excepted quantities (EQ):** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":** UN 1956 COMPRESSED GAS, N.O.S., 2.2

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**Trade name: Precision Calibration Gas Mixture****15 Regulatory Information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
- **SARA (Superfund Amendments and Reauthorization):**

- **Section 355 (extremely hazardous substances):**

7783-06-4 Hydrogen Sulfide

- **Section 313 (Specific toxic chemical listings):**

7783-06-4 Hydrogen Sulfide

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed or exempt from listing.

- **California Proposition 65:**

- **Chemicals known to cause cancer:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

- **Chemicals known to cause developmental toxicity:**

630-08-0 Carbon Monoxide

- **Carcinogenic categories:**

- **EPA (Environmental Protection Agency):**

7783-06-4 Hydrogen Sulfide

- **TLV (Threshold Limit Value established by ACGIH):**

None of the ingredients are listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health):**

None of the ingredients are listed.

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:**



GHS04 GHS06

- **Signal word:** Danger

- **Hazard-determining components of labeling:**

Hydrogen Sulfide

- **Hazard statements:**

H280 Contains gas under pressure; may explode if heated.

H330 Fatal if inhaled.

H402 Harmful to aquatic life.

May displace oxygen and cause rapid suffocation.

- **Precautionary statements:**

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

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- P284 [In case of inadequate ventilation] wear respiratory protection.  
 P271 Use only outdoors or in a well-ventilated area.  
 P273 Avoid release to the environment.  
 P310 Immediately call a POISON CENTER/doctor.  
 P320 Specific treatment is urgent (see supplementary first aid instructions on this Safety Data Sheet).  
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P405 Store locked up.  
 P410+P403 Protect from sunlight. Store in a well-ventilated place.  
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**· National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other Information****· Relevant phrases:**

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- **Date of preparation / last revision:** 08/29/2016 / -

**· Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Flam. Gas 1: Flammable gases – Category 1  
 Oxid. Gas 1: Oxidizing gases – Category 1  
 Press. Gas: Gases under pressure – Compressed gas  
 Press. Gas: Gases under pressure – Dissolved gas  
 Acute Tox. 2: Acute toxicity – Category 2  
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
 Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

- **\* Data compared to the previous version altered.**

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