1 Identification

- Product Identifier
  - Trade name: Precision Calibration Gas Mixture
  - Product Number: G-1315A

- 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 Carbon Monoxide, Hydrogen Sulfide, Methane, 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.

  - GHS08 Health hazard
    Rep. 1
    H360 May damage fertility or the unborn child.

    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  GHS08

(Contd. on page 2)
Safety Data Sheet (SDS)
GSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/29/2016
Reviewed on 08/29/2016

Trade name: Precision Calibration Gas Mixture

- Signal word: Danger
- Hazard-determining components of labeling:
  Carbon Monoxide
  Hydrogen Sulfide
- Hazard statements:
  H280 Contains gas under pressure; may explode if heated.
  H330 Fatal if inhaled.
  H360 May damage fertility or the unborn child.
  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.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P201 Obtain special instructions before use.
  P202 Do not handle until all safety precautions have been read and understood.
  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.
  P303+P313 IF exposed or concerned: Get medical advice/attention.
  P405 Store locked up.
  P403+P405 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:
  99.3% of the mixture consists of component(s) of unknown toxicity.
- Classification system:
  NFPA ratings (scale 0 - 4)
  
  Health = 4
  Fire = 0
  Reactivity = 0
- HMIS-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:
  
<table>
<thead>
<tr>
<th>CAS</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7727-37-9</td>
<td>Nitrogen</td>
<td>75.35 - 91.7995%</td>
</tr>
<tr>
<td>QW 97000000</td>
<td>Press. Gas, H280; Simple Asphyxiant</td>
<td></td>
</tr>
<tr>
<td>7782-44-7</td>
<td>Oxygen</td>
<td>8 - 21%</td>
</tr>
<tr>
<td></td>
<td>Oxid. Gas 1, H270; Press. Gas, H280</td>
<td></td>
</tr>
</tbody>
</table>

(Contd. on page 3)
Trade name: Precision Calibration Gas Mixture

<table>
<thead>
<tr>
<th>CAS:</th>
<th>Description of first aid measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-82-8 Methane</td>
<td>- <strong>After inhalation:</strong> Generally the product does not irritate with inhalation. Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.</td>
</tr>
<tr>
<td>630-08-0 Carbon Monoxide</td>
<td>- <strong>After skin contact:</strong> 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.</td>
</tr>
<tr>
<td>7783-06-4 Hydrogen Sulfide</td>
<td>- <strong>After eye contact:</strong> Not anticipated under normal use. If irritation occurs thoroughly wash the exposed area and discontinue use. Seek medical attention if any adverse effect occurs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flame point</td>
<td>0.1 - 3.0%</td>
</tr>
<tr>
<td>Flammability</td>
<td>0.1501-0.51%</td>
</tr>
<tr>
<td>Toxicity</td>
<td>0.0101-0.14%</td>
</tr>
</tbody>
</table>

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 Carbon, 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:** 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.
Trade name: Precision Calibration Gas Mixture

Handling
- Precautions for safe handling:
  Ensure good ventilation/exhaustion at the workplace.
  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-in, 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.

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:
  The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
  At this time, the remaining constituent has no known exposure limits.

(Contd. on page 5)
Trade name: Precision Calibration Gas Mixture

7727-37-9 Nitrogen
TLV withdrawn TLV, see App. F; simple asphyxiant
74-82-8 Methane
TLV refer to Appendix F, 1000ppm
630-08-0 Carbon Monoxide
PEL Long-term value: 55 mg/m³, 50 ppm
REL Long-term value: 40 mg/m³, 35 ppm
Ceiling limit value: 229 mg/m³, 200 ppm
TLV Long-term value: 29 mg/m³, 25 ppm
BEI

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/m³, 10* ppm
*10-min
TLV Short-term value: 7 mg/m³, 5 ppm
Long-term value: 1.4 mg/m³, 1 ppm

Ingredients with biological limit values:
630-08-0 Carbon Monoxide
BEI 3.5 % of hemoglobin
blood
end of shift
Carboxyhemoglobin (background, nonspecific)
20 ppm
end-exhaled air
end of shift
Carbon monoxide (background, nonspecific)

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.
Store protective clothing separately.

Breathing equipment:
Not necessary if room is well-ventilated.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.

Protection of hands: Not required.

Eye protection: Not necessary under normal conditions.

Physical and Chemical Properties

Information on basic physical and chemical properties
General Information
Appearance:
Form: Gaseous

(Contd. on page 6)
Trade name: Precision Calibration Gas Mixture

Color: Clear, colorless
Odor: Mild
Odor threshold: Not determined.

pH-value: Not determined.
Change in condition:
Melting point/Melting range: Not determined.
Boiling point/Boiling range: -195 °C (-319 °F)

Flash point: None
Flammability (solid, gaseous): Not determined.
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 @ 20 °C (68 °F): 0.023 g/cm³ (0.192 lbs/gal)
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.

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 Carbon, Nitrogen (NOx) and Sulfur.
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

Trade name: Precision Calibration Gas Mixture

### 11 Toxicological Information

#### Information on toxicological effects:

##### Acute toxicity:

<table>
<thead>
<tr>
<th>LD/LC50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>630-08-0</strong> Carbon Monoxide</td>
</tr>
<tr>
<td>Inhalative LC50/4 h 7520 mg/l (rat)</td>
</tr>
<tr>
<td><strong>7783-06-4</strong> Hydrogen Sulfide</td>
</tr>
<tr>
<td>Inhalative LC50/4 h 634 mg/l (mouse)</td>
</tr>
<tr>
<td>LC50/96 hours 0.016 mg/l (Pimephales)</td>
</tr>
<tr>
<td><strong>74-82-8</strong> Methane</td>
</tr>
<tr>
<td>Inhalative LC50/4 h 217 mg/l (mouse)</td>
</tr>
</tbody>
</table>

##### Primary irritant effect:

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

##### 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.

(Contd. on page 8)
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.
  - 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
  - UN proper shipping name:
    - DOT
    - ADR
    - IMDG, IATA
    - 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
    - Environmental hazards:
      - Non-Regulated Material
    - Special precautions for user:
      - Warning: Gases
    - Danger code (Komler): 20
    - EMS Number: F-C, S-V

(Contd. on page 9)
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

Trade name: Precision Calibration Gas Mixture

- 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

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.
Trade name: Precision Calibration Gas Mixture

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

Hazard pictograms:

- GHS04
- GHS06
- GHS08

Signal word: Danger

Hazard-determining components of labeling:
- Carbon Monoxide
- Hydrogen Sulfide

Hazard statements:
- H280 Contains gas under pressure; may explode if heated.
- H330 Fatal if inhaled.
- H360 May damage fertility or the unborn child.
  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.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- 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.
- P308+P3131F exposed or concerned: Get medical advice/attention.
- P406 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.

Other information:

Relevant phrases:
Gasco Affiliates, LLC, makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Gasco Affiliates, LLC shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.

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
Trade name: Precision Calibration Gas Mixture

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
vPvBs: 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
BEI: Biological 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
Acute Tox. 3: Acute toxicity – Category 3
Repr. 1: Reproductive toxicity – Category 1
Repr. 1A: Reproductive toxicity – Category 1A
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment – acute aquatic hazard – Category 1

*Data compared to the previous version altered.*

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