SECTION 1: Identification of the substance/mixture and of the company/undertaking

· 1.1 Product identifier:
  · Trade name: Precision Calibration Gas Mixture G-1315(EU)(LQ)

· 1.2 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 category
  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.

· 1.3 Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    Industrial Scientific
    1 Life Way
    Pittsburgh, PA 15205-7500
    1-412-788-4353
    1-800-DETECTS (338-3287)
    www.indsci.com

· 1.4 Emergency telephone number:
  Inside the US:  1-800-424-9300 (CHEMTREC, 24 hours)
  Outside the US:  1-703-527-3887 (CHEMTREC, 24 hours)

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture
  · Classification according to Regulation (EC) No 1272/2008

  GHS04 gas cylinder

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

  GHS07

  Acute Tox. 4  H332  Harmful if inhaled.

· 2.2 Label elements
  · Labelling according to Regulation (EC) No 1272/2008
    The product is classified and labelled according to the CLP regulation.

  · Hazard pictograms

  GHS04  GHS07

· Signal word: Warning

· Hazard-determining components of labelling:
  Carbon Monoxide

· Hazard statements:
  H280 Contains gas under pressure; may explode if heated.
  H332 Harmful if inhaled.

· Precautionary Statements:
  P261  Avoid breathing dust/fume/gas/mist/vapours/spray.
### SECTION 3: Composition/information on ingredients

#### 3.1 Chemical characterisation: Mixtures

**Description:** Mixture of substances listed below with nonhazardous additions.

**Dangerous components:**

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS</th>
<th>RTECS</th>
<th><strong>Nitrogen</strong></th>
<th><strong>Oxygen</strong></th>
<th><strong>Methane</strong></th>
<th><strong>Carbon Monoxide</strong></th>
<th><strong>Hydrogen Sulfide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>7782-44-7</td>
<td>231-956-9</td>
<td>008-001-00-8</td>
<td>75.3901 - 91.799%</td>
<td>8 - 21%</td>
<td>0.1 - 3.0%</td>
<td>0.0005 - 0.15%</td>
<td>0.0005 - 0.01%</td>
</tr>
<tr>
<td>74-82-8</td>
<td>200-812-7</td>
<td>601-001-00-4</td>
<td>Flam. Gas 1, H220; Press. Gas C, H280</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>630-08-0</td>
<td>211-128-3</td>
<td>006-001-00-2</td>
<td>Flam. Gas 1, H220; Acute Tox. 3, H331</td>
<td>Flam. Gas 1, H220; Acute Tox. 3, H331</td>
<td>Flam. Gas 1, H220; Acute Tox. 2, H330; Aquatic Acute 1, H400; Press. Gas C, H280</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7783-06-4</td>
<td>231-977-3</td>
<td>016-001-00-4</td>
<td>Flam. Gas 1, H220; Acute Tox. 2, H330; Aquatic Acute 1, H400; Press. Gas C, H280</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional information:**

For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

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

**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.
Safety Data Sheet
according to 1907/2006/EC, Article 31

Printing date 19.02.2018
Revision: 19.02.2018
Version number 1

Trade name: Precision Calibration Gas Mixture G-1315(EU)(LQ)

- **After swallowing:** Not a normal route of entry.
- **4.2 Most important symptoms and effects, both acute and delayed**
  No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
  No further relevant information available.

*SECTION 5: Firefighting measures*

- **5.1 Extinguishing media**
  - **Suitable extinguishing agents:**
    Use fire extinguishing methods suitable to surrounding conditions.
    Use water spray to cool fire-exposed containers.
  - **For safety reasons unsuitable extinguishing agents:** No further relevant information available.
- **5.2 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.
- **5.3 Advice for firefighters**
  This gas mixture is not flammable; however, contains, 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 and full protective gear to prevent contact with skin and eyes.

*SECTION 6: Accidental release measures*

- **6.1 Personal precautions, protective equipment and emergency procedures**
  In a confined area, approved respiratory protection may be required.
- **6.2 Environmental precautions:** Inform authorities in case of gas release.
- **6.3 Methods and material for containment and cleaning up:**
  Dispose contaminated materials as waste according to item 13.
  Ensure adequate ventilation.
  Dispose of the material collected according to regulations.
- **6.4 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.

*SECTION 7: Handling and storage*

- **7.1 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.
  - **Information about fire and explosion protection:**
    Pressurised 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 respiratory protective device available.
    Do not spray onto a naked flame or any incandescent material.
    Do not cut, grind or weld on container that contains or contained product.
7.2 Conditions for safe storage, including any incompatibilities
Store away from strong oxidizing agents, strong bases, phosphorus, organic materials and powdered metals.

Storage:
Requirements to be met by storerooms and receptacles:
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.
Store in a cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: Store in cool, dry conditions in well sealed receptacles.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Short-term value</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>630-08-0 Carbon Monoxide</td>
<td>117 mg/m³, 100 ppm</td>
<td>23 mg/m³, 20 ppm</td>
</tr>
<tr>
<td>7783-06-4 Hydrogen Sulfide</td>
<td>14 mg/m³, 10 ppm</td>
<td>7 mg/m³, 5 ppm</td>
</tr>
</tbody>
</table>

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls
Personal protective equipment:
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Store protective clothing separately.
Respiratory protection:
Suitable respiratory protective device recommended.

Protection of hands: Not required.
Material of gloves: Not required.
Penetration time of glove material: Not applicable.
Eye protection: Not necessary under normal conditions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Gaseous
Colour: Clear, colorless
Trade name: Precision Calibration Gas Mixture G-1315(EU)(LQ)

- Odour: Rotten
- pH-value: Not determined.
- Change in condition
  - Melting point/freezing point: Not determined.
  - Initial boiling point and boiling range: -195 °C
- Flash point: Not applicable.
- Flammability (solid, gas): Not determined.
- Decomposition temperature: Not determined.
- Auto-ignition temperature: Product is not self-igniting.
- Explosive properties: Not determined.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapour pressure: Not determined.
- Density:
  - Relative density: Not determined.
  - Vapour 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 %
- 9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

- 10.1 Reactivity: No further relevant information available.
- 10.2 Chemical stability: Stable under normal conditions.
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- 10.3 Possibility of hazardous reactions: No dangerous reactions known.
- 10.4 Conditions to avoid: No further relevant information available.
- 10.5 Incompatible materials:
  - Strong oxidizing agents, strong bases, phosphorus, organic materials and powdered metals.
- 10.6 Hazardous decomposition products: Oxides of Carbon, Nitrogen (NOx) and Sulfur.

SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
  - Acute toxicity
    Harmful if inhaled.
46.1.0.1 LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>LC50/4 h</th>
<th>LC50/96 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>630-08-0</td>
<td>Carbon Monoxide</td>
<td>7520 mg/l (Rat)</td>
<td></td>
</tr>
<tr>
<td>7783-06-4</td>
<td>Hydrogen Sulfide</td>
<td>634 mg/l (Mouse)</td>
<td>0.016 mg/l (Pimephales)</td>
</tr>
<tr>
<td>74-82-8</td>
<td>Methane</td>
<td>217 mg/l (Mouse)</td>
<td></td>
</tr>
</tbody>
</table>

Primary irritant effect:
- Skin corrosion/irritation Based on available data, the classification criteria are not met.
- Serious eye damage/irritation Based on available data, the classification criteria are not met.
- Sensitisation: Based on available data, the classification criteria are not met.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):
  - Germ cell mutagenicity Based on available data, the classification criteria are not met.
  - Carcinogenicity Based on available data, the classification criteria are not met.
- Reproductive toxicity Based on available data, the classification criteria are not met.
- STOT (Specific target organ toxicity)-single exposure Based on available data, the classification criteria are not met.
- STOT (Specific target organ toxicity)-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability No further relevant information available.
- 12.3 Bioaccumulative potential No further relevant information available.
- 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
  - General notes: Generally not hazardous for water
- 12.5 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  - Recommendation: Release all residual gas pressure in a well ventilated area. Verify the cylinder is completely empty (0 PSIG). Remove of cover any hazard labels. Return empty cylinder for recycling.
  - NOTE: Check with the local waste authority before placing any gas cylinder into a waste container for pickup. Industrial Scientific encourages the consumer to returns all cylinders.
  - Uncleaned packaging:
    - Recommendation: Return cylinder and unused product to supplier.
SECTION 14: Transport information

- **14.1 UN-Number**
  - ADR/ADN, IMDG, IATA
  - UN1956

- **14.2 UN proper shipping name**
  - ADR/ADN
  - UN1956 COMPRESSED GAS, N.O.S. (NITROGEN, OXYGEN)
  - IMDG, IATA
  - COMPRESSED GAS, N.O.S. (NITROGEN, OXYGEN)

- **14.3 Transport hazard class(es)**
  - ADR/ADN
  - Limited Quantity: 120 mls per Packing Instruction P200
    - Class 2.2
    - Label 2.2
  - IMDG
  - Limited Quantity: 120 mls per Packing Instruction P200
    - Class 2.2
    - Label 2.2
  - IATA
  - Limited Quantity: Forbidden
    - Class 2.2
    - Label 2.2

- **14.4 Packing group**
- **14.5 Environmental hazards:** Not applicable.
- **14.6 Special precautions for user:** Not applicable.
- **Danger code (Kemler):** 20
- **EMS Number:** F-C,S-V
Trade name: Precision Calibration Gas Mixture G-1315(EU)(LQ)

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable.

Transport/Additional information:

- ADR/ADN
  - Limited quantities (LQ) 120 ml
  - Code: E1
  - Exempted quantities (EQ) Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml

- Transport category
  - 3

- Tunnel restriction code
  - (E)

- IMDG
  - Limited quantities (LQ) 120 ml

- IATA
  - UN "Model Regulation": Limited Quantity: Forbidden
  - UN 1956 COMPRESSED GAS, N.O.S. (NITROGEN, OXYGEN), 2.2

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Directive 2012/18/EU
  - Named dangerous substances - ANNEX I: None of the ingredients are listed.

- National regulations:
  - The product is not subject to be labelled according with the prevailing version of the regulations on hazardous substances.

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

SECTION 16: Other information

- Relevant phrases
  - H220 Extremely flammable gas.
  - H270 May cause or intensify fire; oxidiser.
  - H280 Contains gas under pressure; may explode if heated.
  - H330 Fatal if inhaled.
  - H331 Toxic if inhaled.
  - H360D May damage the unborn child.
  - H372 Causes damage to organs through prolonged or repeated exposure.
  - H400 Very toxic to aquatic life.

- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
  - IATA: International Air Transport Association
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - 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)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Flam. Gas 1: Flammable gases – Category 1
  - Ox. Gas 1: Oxidizing gases – Category 1
  - Press. Gas C: Gases under pressure – Compressed gas
Press. Gas D: Gases under pressure – Dissolved gas
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
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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