

## Safety Data Sheet (SDS)

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

Issue date 06/25/2015

Reviewed on 06/25/2015

### \* 1 Identification

· **Product identifier**

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

· **Product number:** G-2915

· **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 Ethylene Oxide 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.



GHS08 Health hazard

Muta. 1B            H340 May cause genetic defects.

Carc. 1B            H350 May cause cancer.

Repr. 1A            H360 May damage fertility or the unborn child.

Simple Asphyxiant            May displace oxygen and cause rapid suffocation.

· **Label elements**

· **GHS label elements**

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

· **Hazard pictograms**



GHS04    GHS08

· **Signal word** Danger

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

Ethylene oxide

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Contains gas under pressure; may explode if heated.  
 May cause genetic defects.  
 May cause cancer.  
 May damage fertility or the unborn child.  
 May displace oxygen and cause rapid suffocation.

**Precautionary statements**

Wear protective gloves/protective clothing/eye protection/face protection.  
 Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 IF exposed or concerned: Get medical advice/attention.  
 Store locked up.  
 Protect from sunlight. Store in a well-ventilated place.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Unknown acute toxicity:**

99.9 percent of the mixture consists of ingredient(s) of unknown toxicity.

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

HEALTH	2	Health = *2
FIRE	0	Fire = 0
REACTIVITY	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 nonhazardous additions.

**Dangerous Components:**

CAS: 7727-37-9 RTECS: QW 9700000	Nitrogen ⚠ Press. Gas, H280; Simple Asphyxiant	99.9 - 99.9997%
CAS: 75-21-8 RTECS: KX 2450000	Ethylene oxide ⚠ Flam. Gas 1, H220; ⚠ Acute Tox. 3, H331; ⚠ Muta. 1B, H340; ⚠ Carc. 1B, H350; ⚠ Repr. 1A, H360; ⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2A, H319; ⚠ STOT SE 3, H335; ⚠ Press. Gas, H280; ⚠ Aquatic Acute 3, H402	0.0003 - 0.1%

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

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 securely on side position for transportation.

**After skin contact:**

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

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Wash with soap and water.

If skin irritation occurs, consult a doctor.

· **After eye contact:**

Not anticipated under normal use.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Not a normal route of entry.

If swallowed and symptoms occur, consult a doctor.

· **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 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 and Nitrogen (NOx).

· **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.

· **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.

Ensure adequate ventilation

Keep people at a distance and stay upwind.

· **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.

Open and handle receptacle with care.

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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.

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

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

Keep protective respiratory device available.

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

Store away from strong oxidizing agents, reactive metals, alkali metals, metal salts, alcohols and ammonia.

- **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.

## \* 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

### 75-21-8 Ethylene oxide

PEL | Short-term value: 5 ppm  
Long-term value: 1 ppm  
see 29 CFR 1910.1047(c)

REL | Long-term value: 0.18 mg/m<sup>3</sup>, <0.1 ppm  
Ceiling limit value: 9\* mg/m<sup>3</sup>, 5\* ppm  
See Pocket Guide App. A; \*10-min/day

TLV | Long-term value: 1.8 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

Select glove material based on penetration times, rates of diffusion and degradation.

· **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. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **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:**

Mild

· **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 applicable.

· **Flammability (solid, gaseous):**

Not determined.

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**Trade name: Precision Calibration Gas Mixture**

- **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** No further relevant information available.
- **Incompatible materials:**  
Strong oxidizing agents, reactive metals, alkali metals, metal salts, alcohols and ammonia.
- **Hazardous decomposition products:** Oxides of Carbon and Nitrogen (NOx).

**\* 11 Toxicological information**

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

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

**75-21-8 Ethylene oxide**

Oral	LD50	72 mg/kg (rat)
Inhalative	LC50/4 h	2671 mg/l (rat)
	LC50/96 hours	84 mg/l (Fathead Minnow)

- **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.

The product can cause inheritable damage.

**· 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

75-21-8	Ethylene oxide	1
<b>· NTP (National Toxicology Program)</b>		
75-21-8	Ethylene oxide	K
<b>· OSHA-Ca (Occupational Safety &amp; Health Administration)</b>		
75-21-8	Ethylene oxide	

**\* 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:**  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.
- **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

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**Trade name: Precision Calibration Gas Mixture**

- **UN proper shipping name**
- **DOT**
- **ADR**
- **IMDG, IATA**
- **Transport hazard class(es)**

Compressed gas, n.o.s.  
 UN1956 Compressed gas, n.o.s.  
 COMPRESSED GAS, N.O.S.

- **DOT**



- **Class**
- **Label**

2.2  
 2.2

- **ADR**



- **Class**
- **Label**

2.2 1A  
 2.2

- **IMDG, IATA**



- **Class**
- **Label**
- **Packing group**
- **DOT, ADR, IMDG, IATA**
- **Environmental hazards:**
- **Special precautions for user**
- **Danger code (Kemler):**
- **EMS Number:**
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
- **Transport/Additional information:**

2.2  
 2.2  
 -  
 Non-Regulated Material  
 Not applicable.  
 Not applicable.  
 20  
 F-C,S-V  
 Not applicable.

- **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)**
- **Excepted quantities (EQ)**

120 ml  
 Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

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**Trade name: Precision Calibration Gas Mixture**· **UN "Model Regulation":** UN1956, Compressed gas, n.o.s., 2.2**\*15 Regulatory information**

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
 · **Sara**

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

75-21-8 Ethylene oxide

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

75-21-8 Ethylene oxide

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

All ingredients are listed.

· **California Proposition 65**· **Chemicals known to cause cancer:**

75-21-8 Ethylene oxide

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

75-21-8 Ethylene oxide

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

75-21-8 Ethylene oxide

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

75-21-8 Ethylene oxide

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

· **TLV (Threshold Limit Value established by ACGIH)**

75-21-8 Ethylene oxide

A2

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

75-21-8 Ethylene oxide

· **GHS label elements**

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

· **Hazard pictograms**

GHS04 GHS08

· **Signal word** Danger· **Hazard-determining components of labeling:**

Ethylene oxide

· **Hazard statements**

Contains gas under pressure; may explode if heated.

May cause genetic defects.

May cause cancer.

May damage fertility or the unborn child.

May displace oxygen and cause rapid suffocation.

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Wear protective gloves/protective clothing/eye protection/face protection.  
 Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 IF exposed or concerned: Get medical advice/attention.  
 Store locked up.  
 Protect from sunlight. Store in a well-ventilated place.  
 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.

**State Right to Know**

CAS: 7727-37-9 RTECS: QW 9700000	Nitrogen ⚠ Press. Gas, H280; Simple Asphyxiant	99.9 - 99.9997%
CAS: 75-21-8 RTECS: KX 2450000	Ethylene oxide ⚠ Flam. Gas 1, H220; ⚠ Acute Tox. 3, H331; ⚠ Muta. 1B, H340; Carc. 1B, H350; Repr. 1A, H360; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335; Press. Gas, H280; Aquatic Acute 3, H402	0.0003 - 0.1%
All ingredients are listed.		

**Information about limitation of use:**

**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** 06/25/2015 / -

**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  
 Flam. Gas 1: Flammable gases, Hazard Category 1  
 Press. Gas: Gases under pressure: Compressed gas  
 Acute Tox. 3: Acute toxicity, Hazard Category 3  
 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2  
 Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A  
 Muta. 1B: Germ cell mutagenicity, Hazard Category 1B  
 Carc. 1B: Carcinogenicity, Hazard Category 1B  
 Repr. 1A: Reproductive toxicity, Hazard Category 1A

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STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3  
Aquatic Acute 3: Hazardous to the aquatic environment - AcuteHazard, Category 3

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

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