

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 01/20/2021

Reviewed on 01/20/2021

* 1 Identification

· **Product Identifier**

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

· **Product Number:** G-44920A

· **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, Carbon Dioxide and Hydrogen.

· **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: 1-833-723-3267 (Chemtrec, 24 hours)

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

2 Hazard(s) Identification

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



Flame

Flam. Gas 1 H220 Extremely flammable gas.



Gas cylinder

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



Health hazard

STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

Simple Asphyxiant May displace oxygen and cause rapid suffocation.

· **Label elements:**

· **Hazard pictograms:**



· **Signal word:** Danger

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

Carbon Monoxide

· **Hazard statements:**

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

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H372 Causes damage to organs through prolonged or repeated exposure.
May displace oxygen and cause rapid suffocation.

Precautionary statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P314 Get medical advice/attention if you feel unwell.
- P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P381 Eliminate all ignition sources if safe to do so.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Unknown acute toxicity:

This value refers to knowledge of known, established toxicological or ecotoxicological values.
100 % of the mixture consists of component(s) of unknown toxicity.

Classification system: NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme**NFPA ratings (scale 0 - 4)****HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = *0
FIRE	0	Fire = 0
REACTIVITY	0	Physical Hazard = 0

Hazard(s) not otherwise classified (HNOC): None known*** 3 Composition/Information on Ingredients****Chemical characterization: Substance**

Description: Mixture of substances listed below with non-hazardous additions.

Dangerous Components:

CAS: 1333-74-0 RTECS: MW 8900000	Hydrogen ⚠ Flam. Gas 1, H220; ⚠ Press. Gas, H280	82-98.8499%
CAS: 124-38-9 RTECS: FF 6400000	Carbon Dioxide ⚠ Press. Gas, H280; Simple Asphyxiant	1-6%
CAS: 630-08-0 RTECS: FG 3500000	Carbon Monoxide ⚠ Flam. Gas 1, H220; ⚠ Press. Gas, H280; ⚠ Acute Tox. 3, H331; ⚠ Repr. 1A, H360; STOT RE 1, H372	0.1501-12%

Additional information:

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

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

Generally the product does not irritate with inhalation.
Supply fresh air; consult doctor in case of complaints.

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· **After skin contact:**

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

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.

· **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.

· **For safety reasons unsuitable extinguishing agents:** No further relevant information.

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

Closed containers may explode when exposed to extreme heat.

If incinerated, product will relesaset the following toxic fumes: Oxides of Carbon.

· **Advice for firefighters**

This gas mixture is flammable; and, containers, when involved in fire, may rupture or burst in the heat of the fire.

· **Special protective equipment for firefighters:**

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:**

Treat any fumes as toxic.

Keep away from ignition sources

Ensure adequate ventilation.

Keep people at a distance and stay upwind.

Wear protective equipment. Keep unprotected persons away.

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

· **Environmental precautions:** No special measures required.

· **Methods and material for containment and cleaning up:** Ensure adequate ventilation.

· **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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

1333-74-0	Hydrogen	65000*** ppm
630-08-0	Carbon Monoxide	75 ppm

· **PAC-2:**

1333-74-0	Hydrogen	230000*** ppm
630-08-0	Carbon Monoxide	83 ppm

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· PAC-3:		
1333-74-0	Hydrogen	400000*** ppm
630-08-0	Carbon Monoxide	330 ppm

7 Handling and Storage

· **Handling**

· **Precautions for safe handling:**

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:**

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

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

Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

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.

· **Conditions for safe storage, including any incompatibilities** Store away from strong oxidizing agents.

· **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:**

Keep receptacle tightly sealed.

Do not gas tight seal receptacle.

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

· **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:**

1333-74-0 Hydrogen

TLV | TLV withdrawn-see App. F; simple asphyxiant;(D, EX)

124-38-9 Carbon Dioxide

PEL | Long-term value: 9000 mg/m³, 5000 ppm

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REL	Short-term value: 54,000 mg/m ³ , 30,000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm
TLV	Short-term value: 54,000 mg/m ³ , 30,000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm
630-08-0 Carbon Monoxide	
PEL	Long-term value: 55 mg/m ³ , 50 ppm
REL	Long-term value: 40 mg/m ³ , 35 ppm Ceiling limit value: 229 mg/m ³ , 200 ppm
TLV	Long-term value: 29 mg/m ³ , 25 ppm BEI
· 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:** Wash hands before breaks and at the end of work.

· **Breathing equipment:** Use suitable respiratory protective device in case of insufficient ventilation.

· **Protection of hands:** Not required.

· **Material of gloves:** Not applicable.

· **Penetration time of glove material:** Not applicable.

· **Eye protection:** Not necessary under normal conditions.

· **Limitation and supervision of exposure into the environment:** None

9 Physical and Chemical Properties

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

· **General Information**

· **Appearance:**

Form: Gaseous

Color: Clear, colorless

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Not determined.

· **Flash point:** Not determined.

· **Flammability (solid, gaseous):** Flammable.

· **Ignition temperature:** Not applicable

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- **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.
- **Other information:** No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **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, phosphorous, organic materials and powdered metals.
- **Hazardous decomposition products:** Carbon Oxides.

11 Toxicological Information

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

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

630-08-0 Carbon Monoxide

Inhalative	LC50/4 h	7520 mg/l (Rat)
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- **Primary irritant effect:**
- **On the skin:** No irritating effect.
- **On the eye:** No irritating effect.
- **Additional toxicological information:**
- **Carcinogenic categories:**

- **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

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

None of the ingredients are listed.

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<ul style="list-style-type: none"> · OSHA-Ca (Occupational Safety & Health Administration):
<ul style="list-style-type: none"> 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 cylinder for recycling.
NOTE: Check with the local waste authority before placing any gas cylinder into waste container for pickup.
GASCO encourages the consumer to return all cylinders.
- **Waste disposal key:** The U.S. EPA has not published waste disposal numbers for this product's components.
- **Uncleaned packaging**
- **Recommendation:** Return cylinder and unused product to supplier.

14 Transport Information

- | | |
|--|---|
| <ul style="list-style-type: none"> · UN-Number: · DOT, ADR/ADN, IMDG, IATA · UN proper shipping name: · DOT · ADR/ADN · IMDG, IATA · Transport hazard class(es): · DOT | <p>UN1954</p> <p>Compressed gas, flammable, n.o.s.
UN1954 COMPRESSED GAS, FLAMMABLE, N.O.S.
COMPRESSED GAS, FLAMMABLE, N.O.S.</p> |
|--|---|



- | | |
|--|---------------------------|
| <ul style="list-style-type: none"> · Class: · Label: | <p>2 Gases</p> <p>2.1</p> |
|--|---------------------------|

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· **ADR/ADN**



- **Class:** 2 1F Gases
 · **Label:** 2.1

· **IMDG, IATA**



- **Class:** 2 Gases
 · **Label:** 2.1
 · **Packing group:**
 · **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
 · **Environmental hazards:** Not applicable.
 · **Special precautions for user:** Warning: Gases
 · **Hazard identification number (Kemler code):** 23
 · **EMS Number:** F-D,S-U
 · **Stowage Category** D
 · **Stowage Code** SW2 Clear of living quarters.
 · **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: Forbidden
 On cargo aircraft only: 150 kg

· **ADR/ADN**

- **Excepted quantities (EQ):** Code: E0
 Not permitted as Excepted Quantity

· **IMDG**

- **Limited quantities (LQ):** 0
 · **Excepted quantities (EQ):** Code: E0
 Not permitted as Excepted Quantity
 · **UN "Model Regulation":** UN 1954 COMPRESSED GAS, FLAMMABLE, N.O.S., 2.1

15 Regulatory Information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
 No further relevant information available.

· **SARA (Superfund Amendments and Reauthorization):**

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

None of the ingredients are listed.

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

None of the ingredients are listed.

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· TSCA (Toxic Substances Control Act):		
All components have the value ACTIVE.		
· Hazardous Air Pollutants		
None of the ingredients are listed.		
· 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	
· New Jersey Right-to-Know List:		
All ingredients are listed.		
· New Jersey Special Hazardous Substance List:		
1333-74-0	Hydrogen	F4
630-08-0	Carbon Monoxide	TE, F4
· Pennsylvania Right-to-Know List:		
All ingredients are listed.		
· Pennsylvania Special Hazardous Substance List:		
630-08-0	Carbon Monoxide	E
· Carcinogenic categories:		
· EPA (Environmental Protection Agency):		
None of the ingredients are listed.		
· 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:


· **Signal word:** Danger

Hazard-determining components of labeling:

Carbon Monoxide

Hazard statements:

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H372 Causes damage to organs through prolonged or repeated exposure.

May displace oxygen and cause rapid suffocation.

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· **Precautionary statements:**

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P314 Get medical advice/attention if you feel unwell.
- P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P381 Eliminate all ignition sources if safe to do so.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

None of the ingredients are listed.

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

16 Other Information

· **Relevant phrases:**

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· **Contact:**

· **Date of last revision/ revision number:** 01/20/2021 / -

· **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 and Health
- OSHA: Occupational Safety & Health Administration
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- BEI: Biological Exposure Limit
- Flam. Gas 1: Flammable gases – Category 1
- Press. Gas: Gases under pressure – Compressed gas
- Acute Tox. 3: Acute toxicity – Category 3
- Repr. 1A: Reproductive toxicity – Category 1A
- STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

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

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