



ACCORDING TO US CFR 1910.1200

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name CALIBRATING GAS MIX.
CAS No. Mixture.
EC No. Mixture.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s) Industrial gas.
Uses Advised Against Not known.

1.3 Details of the supplier of the safety data sheet

Company Identification Hudson Technologies Company
Address PO Box 1541
One Blue Hill Plaza
Pearl River, New York
USA
Postal code 10965
Telephone +1 (800) 953 2244
Fax +1 (845) 512 6070
E-mail information@hudsontech.com

1.4 Emergency telephone number

Company +1 (800) 501 4376
CHEMTREC (U.S.) +1 (800) 424 9300
INTERNATIONAL +1 (703) 527 3887

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

US CFR 1910.1200

Flam. Gas 1: Extremely flammable gas.

Gases under pressure; Press. Gas; Compressed gas.

2.2 Label elements

Product Name

CALIBRATING GAS MIX.

Hazard Pictogram(s)



GHS02



GHS04

Signal Word(s)

Danger.

Hazard Statement(s)

H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

Precautionary Statement(s)

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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.

2.3 Other hazards

Can form explosive mixture with air.

May cause asphyxiation when concentrations are sufficient to reduce oxygen below safe breathing levels.

May cause frost-bite.

2.4 Additional Information

This SDS is available in languages other than English.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENT(S)	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Hydrogen	1333-74-0	99	Flam. Gas 1; H220 Press. Gas, Compressed gas; H280	GHS02 GHS04
Oxygen	7782-44-7	1	Press. Gas, Compressed gas; H280, Ox. Gas 1; H270	GHS04 GHS03

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if necessary. If breathing has stopped, apply artificial respiration.

Skin Contact Flush skin with large amounts of water. Thaw frosted parts with lukewarm water. Do no rub affected area. If symptoms persist, obtain medical attention.

Eye Contact Flush eyes with water for at least 15 minutes.

Ingestion Unlikely route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: High concentrations: Loss of coordination, Unconsciousness.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. SECTION 5: FIREFIGHTING MEASURES

Extremely flammable gas. Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

5.1 Extinguishing media

Suitable Extinguishing media Extinguish preferably with foam, dry chemical or waterspray or fog.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Contains gas under pressure; may explode if heated. Can form explosive mixture with air. Burns with an invisible flame. Spontaneous/explosive re-ignition may occur.

5.3 Advice for fire-fighters

Evacuate area and fight fire remotely due to the risk of explosion. Eliminate all ignition sources if safe to do so. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. If it is safe to do so, containers should be removed from fire area because they are likely to rupture under fire conditions. Keep containers cool by spraying with water if exposed to fire.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate area. Eliminate sources of ignition. Ensure adequate ventilation. Avoid breathing gas. Wear suitable respiratory protection.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Stop leak if safe to do so. Allow small spillages to evaporate provided there is adequate ventilation. Ventilate area.

6.4 Reference to other sections

See Also Section 8, 13.

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use non-sparking hand tools and explosion proof electrical equipment. Avoid breathing gas. Avoid contact with skin and eyes. Wear protective gloves/protective clothing/eye protection/face protection. Do not drag, roll, slide or drop cylinders. Use a suitable hand truck design for cylinder movement. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object into valve cap openings. Doing so may damage valve causing a leak to occur. Secure cylinders in an upright position at all times, close all valves when not in use. Keep closed even when empty. Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Protect from sunlight. Store in a well-ventilated place.

Storage temperature < 125 °F (52 °C)

Storage life Stable under normal conditions.

Incompatible materials Air, Oxidizing agents.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits None assigned.

8.2 Exposure controls

Appropriate engineering controls Ensure adequate ventilation.

Personal protection equipment



Eye Protection

Wear suitable eye/face protection.



Skin protection

Wear suitable gloves.



Respiratory protection

Wear suitable respiratory protective equipment if exposure to high levels of material is likely.

Thermal hazards Not applicable.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

The following information is based on the principal component: Hydrogen (CAS No.: 1333-74-0)

9.1 Information on basic physical and chemical properties

Appearance Gas.

Color: Colorless.

Odor Odorless.

Odor threshold Not established.

pH Not applicable.

Melting point/freezing point -434.56 °F (-259.2 °C)

Initial boiling point and boiling range -422.99 °F (-252.77 °C)

Critical Temperature -400 °F (-240 °C)

Flash Point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	4 – 77 Vol-%
Vapor pressure	Not available.
Vapor density	0.069 (Air = 1)
Relative density	0.07
Solubility(ies)	Solubility (Water): Slightly soluble. (1.62 mg/l) Solubility (Other): Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	1040 °F (560 °C)
Decomposition Temperature (°C)	Not available.
Viscosity	Not applicable.
Explosive properties	Can form explosive mixture with air.
Oxidizing properties	Not oxidizing.
9.2 Other information	
Molecular weight	2.02 g/mol

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Can form explosive mixture with air.

10.4 Conditions to avoid

Keep away from heat and sources of ignition.

10.5 Incompatible materials

Air, Oxidizing agents.

10.6 Hazardous decomposition product(s)

No hazardous decomposition products known.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion	Low acute toxicity.
Acute toxicity - Skin Contact	Low acute toxicity.
Acute toxicity - Inhalation	Low acute toxicity.
Skin corrosion/irritation	Non-irritant.
Serious eye damage/irritation	Non-irritant.
Skin sensitization data	Not classified.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	There is no evidence of mutagenic potential.
Carcinogenicity	No evidence of carcinogenicity.
Reproductive toxicity	Not classified.
Lactation	Not classified.
STOT - single exposure	None anticipated.
STOT - repeated exposure	None anticipated.
Aspiration hazard	Not classified.

11.2 Other information

Not known.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity - Aquatic invertebrates	Low toxicity to invertebrates.
Toxicity - Fish	Low toxicity to fish.
Toxicity - Algae	Low toxicity to algae.
Toxicity - Sediment	Not classified.

Compartment

Toxicity - Terrestrial	Not classified.
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Compartment

12.2 Persistence and Degradation

No adverse ecological effects are expected.

12.3 Bioaccumulative potential

No adverse ecological effects are expected.

12.4 Mobility in soil

Not applicable.

12.5 Other adverse effects

None anticipated.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Containers must not be punctured or destroyed by burning, even when empty. Refer to manufacturer/supplier for information on recovery/recycling.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

14. SECTION 14: TRANSPORT INFORMATION

14.1 UN number

UN No. 1954

14.2 UN proper shipping name

UN proper shipping name COMPRESSED GAS, FLAMMABLE, N.O.S.

14.3 Transport hazard class(es)

ADR/RID Class 2.1
 IMDG Class 2.1
 IMDG EMS Not available

ICAO/IATA

Excepted Quantities E0
 Passenger and Cargo Aircraft Forbidden for transport by air.

Limited Quantities Packing

Instructions

Passenger and Cargo Aircraft Forbidden for transport by air.

Limited Quantities Max net Qty

Passenger and Cargo Aircraft Forbidden for transport by air.

Max net Qty

Passenger and Cargo Aircraft Forbidden for transport by air.

Max net Qty

Special Provisions A1
 Emergency Response 10L

Guidebook (ERG) Code

ADR Classification Code 1F
 ADR HIN 23

ADR Transport Category 2

Tunnel Restriction Code B/D

Emergency Action Code 2SE
 Advice on Additional Personal Protection (APP) Not applicable
 14.4 Packing group
 Packing group Not applicable
 Labels 2.1



Special Provisions 274 660
 Limited Quantities 0
 Excepted Quantities E0
 Mixed Packing Instructions for Packages P200
 Special Packing Provisions for Packages Not applicable
 Mixed Packing Instructions for Packages MP9

14.5 Environmental hazards

Environmental hazards Not classified as a Marine Pollutant.

14.6 Special precautions for user

Special precautions for user Not known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Packing Instructions for Portable (M)

Tanks

Special Provisions for Portable Tanks Not applicable

Tanks

Tank Code for Tanks CxBN(M)

Special Provisions for Tanks TA4 TT9

Vehicle for Tank Carriage FL

Special Provisions for Carriage - Packages Not applicable

Special Provisions for Carriage - Bulk Not applicable

Bulk

Special Provisions for Carriage - CV9 CV10 CV36

Loading, Unloading and Handling



Special Provisions for Carriage - S2 S20

Operation

15. SECTION 15: REGULATORY INFORMATION

15.1 Federal

Toxic and hazardous substances All chemicals are not listed.

(29 CFR 1910; Subpart Z)

National emission standards for All chemicals are not listed.

hazardous air pollutants (40 CFR

61.01)

Title III Consolidated List of Lists Hydrogen (CAS No.: 1333-74-0)

TSCA (Toxic Substance Control All chemicals listed.

Act)

CAA 602 - Ozone Depleting All chemicals are not listed.

Substances (ODS)

15.2 State

State Right to Know Lists Hydrogen (CAS No.: 1333-74-0)

Listed in: New Jersey, Pennsylvania, Rhode Island, Minnesota.

Oxygen (CAS No. 7782-44-7)

Listed in: New Jersey, Pennsylvania, Rhode Island.

Proposition 65 (California) All chemicals are not listed.

15.3 Other

OSPAR List of Chemicals for All chemicals are not listed.

Priority Action

NTP (National Toxicology All chemicals are not listed.

Program)

OSHA All chemicals are not listed.

(List of Highly Hazardous

Chemicals, Toxics and

Reactives)

IARC (International Agency for Research on Cancer) All chemicals are not listed.

16. SECTION 16: OTHER INFORMATION

The following sections contain 1-16 revisions or new statements:

NFPA		HMIS	
Health	0	Health	0
Fire	4	Flammability	4
Instability	0	Physical hazards	3

LEGEND:

Hazard Pictogram(s)



GHS02



GHS04

Hazard Statement(s)

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Precautionary Statement(s)

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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.

Additional Information required by Federal Standard 313 Rev. E:

Contract or Solicitation Number: SPE4A6-16-D-0226

Prime Contractor: Hudson Technologies, Inc.

Prime Contractor CAGE: 7DSQ0

National Stock Number (NSN): 6830014499261

Specification Reference:

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