

# SAFETY DATA SHEET

RGA Calib Mix Cylinder, 1ea

## Section 1. Identification

### 1.1 Product identifier

Product name : RGA Calib Mix Cylinder, 1ea

Part no. : 5184-3538

Validation date : 8/23/2024

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use  
17 ft<sup>3</sup> cylinder  
This Part Number is contained in: G2802A, G2804A and G2805A.

### 1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA  
800-227-9770

### 1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H220 FLAMMABLE GASES - Category 1  
H280 GASES UNDER PRESSURE - Compressed gas  
SIMPLE ASPHYXIANTS  
H340 GERM CELL MUTAGENICITY - Category 1  
H350 CARCINOGENICITY - Category 1A  
H360 TOXIC TO REPRODUCTION - Category 1A  
H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1  
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 33%

### 2.2 GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H220 - Extremely flammable gas.  
H280 - Contains gas under pressure; may explode if heated.  
H340 - May cause genetic defects.  
H350 - May cause cancer.  
H360 - May damage fertility or the unborn child.  
H372 - Causes damage to organs through prolonged or repeated exposure. (heart)  
May displace oxygen and cause rapid suffocation.

### Precautionary statements

## Section 2. Hazards identification

- Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing and eye or face protection.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260 - Do not breathe gas.  
P270 - Do not eat, drink or smoke when using this product.
- Response** : P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381 - In case of leakage, eliminate all ignition sources.  
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
- Storage** : P403 - Store in a well-ventilated place.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name | %  | CAS number |
|-----------------|----|------------|
| Ethylene        | ≤3 | 74-85-1    |
| Carbon monoxide | ≤3 | 630-08-0   |
| Propyne         | ≤3 | 74-99-7    |
| 1,3-Butadiene   | ≤1 | 106-99-0   |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## Section 4. First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : As this product is a gas, refer to the inhalation section.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Inhalation** : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Ingestion** : As this product is a gas, refer to the inhalation section.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

### 5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

## Section 5. Fire-fighting measures

### Hazardous thermal decomposition products

- : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

- : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

#### Special protective equipment for fire-fighters

- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

- : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

#### For emergency responders

- : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

#### Methods for cleaning up

- : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

#### Protective measures

- : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.

#### Advice on general occupational hygiene

- : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

## Section 7. Handling and storage

### 7.2 Conditions for safe storage, including any incompatibilities

: Do not store above the following temperature: 51.67°C (125°F). Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

#### Recommendations

: Industrial applications, Professional applications.

#### Industrial sector specific solutions

: Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name | Exposure limits  |
|-----------------|--|
| Ethylene        | <b>ACGIH TLV (United States, 1/2024).</b><br>TWA: 200 ppm 8 hours.   |
| Carbon monoxide | <b>ACGIH TLV (United States, 1/2024).</b><br>TWA: 25 ppm 8 hours.<br>TWA: 29 mg/m <sup>3</sup> 8 hours.<br><b>OSHA PEL 1989 (United States, 3/1989).</b><br>TWA: 35 ppm 8 hours.<br>TWA: 40 mg/m <sup>3</sup> 8 hours.<br>CEIL: 200 ppm<br>CEIL: 229 mg/m <sup>3</sup><br><b>NIOSH REL (United States, 10/2020).</b><br>TWA: 35 ppm 10 hours.<br>TWA: 40 mg/m <sup>3</sup> 10 hours.<br>CEIL: 200 ppm<br>CEIL: 229 mg/m <sup>3</sup><br><b>OSHA PEL (United States, 5/2018).</b><br>TWA: 50 ppm 8 hours.<br>TWA: 55 mg/m <sup>3</sup> 8 hours.<br><b>CAL OSHA PEL (United States, 5/2018).</b><br>C: 200 ppm<br>TWA: 29 mg/m <sup>3</sup> 8 hours.<br>TWA: 25 ppm 8 hours. |
| Propyne         | <b>ACGIH TLV (United States, 1/2024).</b><br><b>Explosive potential.</b><br>TWA: 1640 mg/m <sup>3</sup> 8 hours.<br>TWA: 1000 ppm 8 hours.<br><b>NIOSH REL (United States, 10/2020).</b><br>TWA: 1650 mg/m <sup>3</sup> 10 hours.<br>TWA: 1000 ppm 10 hours.<br><b>OSHA PEL (United States, 5/2018).</b><br>TWA: 1650 mg/m <sup>3</sup> 8 hours.<br>TWA: 1000 ppm 8 hours.<br><b>OSHA PEL 1989 (United States, 3/1989).</b><br>TWA: 1650 mg/m <sup>3</sup> 8 hours.<br>TWA: 1000 ppm 8 hours.<br><b>CAL OSHA PEL (United States, 5/2018).</b><br>TWA: 1650 mg/m <sup>3</sup> 8 hours.<br>TWA: 1000 ppm 8 hours.  |

## Section 8. Exposure controls/personal protection

|               |   |
|---------------|---|
| 1,3-Butadiene | <p><b>ACGIH TLV (United States, 1/2024).</b><br/>TWA: 2 ppm 8 hours.<br/>TWA: 4.4 mg/m<sup>3</sup> 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b><br/>TWA: 1 ppm 8 hours.<br/>STEL: 5 ppm 15 minutes.</p> <p><b>OSHA PEL (United States, 5/2018).</b><br/>TWA: 1 ppm 8 hours.<br/>STEL: 5 ppm 15 minutes.</p> <p><b>CAL OSHA PEL (United States, 5/2018).</b><br/>STEL: 11 mg/m<sup>3</sup> 15 minutes.<br/>STEL: 5 ppm 15 minutes.<br/>TWA: 2.2 mg/m<sup>3</sup> 8 hours.<br/>TWA: 1 ppm 8 hours.</p> |
|---------------|---|

### Biological exposure indices

| Ingredient name | Exposure indices   |
|-----------------|--|
| Carbon monoxide | <p><b>ACGIH BEI (United States, 1/2024)</b><br/>BEI: 3.5 % of hemoglobin, carboxyhemoglobin [in blood]. Sampling time: end of shift.<br/>BEI: 20 ppm, carbon monoxide [in end-exhaled air]. Sampling time: end of shift.</p>   |
| 1,3-Butadiene   | <p><b>ACGIH BEI (United States, 1/2024)</b><br/>BEI: 2.5 mg/l [Semi-quantitative: The determinant is an indicator of exposure to the chemical, but the quantitative interpretation of the measurement is ambiguous. These determinants should be used as a screening test if a quantitative test is not practical or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], 1,2 dihydroxy-4-(N-acetylcysteinyl)-butane [in urine]. Sampling time: end of shift.<br/>BEI: 2.5 pmol/g hemoglobin [Semi-quantitative: The determinant is an indicator of exposure to the chemical, but the quantitative interpretation of the measurement is ambiguous. These determinants should be used as a screening test if a quantitative test is not practical or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], mixture of N-1- and N-2-(hydroxybutenyl)valine hemoglobin (Hb) adducts [in blood]. Sampling time: not critical.</p> |

### 8.2 Exposure controls

#### Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

## Section 8. Exposure controls/personal protection

- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : The gas can cause asphyxiation without warning by replacing the oxygen in the air. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.


### Appearance

- Physical state** : Gas.
- Color** : Colorless.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point/freezing point** : Not applicable.
- Boiling point, initial boiling point, and boiling range** : Not available.



## Section 9. Physical and chemical properties and safety characteristics

|  |                                       |
|--|---------------------------------------|
| Flash point  | : Not applicable.                     |
| Evaporation rate                                   | : Not available.                      |
| Flammability                                       | : Not available.                      |
| Lower and upper explosion limit/flammability limit | : Not available.                      |
| Vapor pressure                                     | : Not available.                      |
| Relative vapor density                             | : Not available.                      |
| Relative density                                   | : 1                                   |
| Density  | : 1 g/cm <sup>3</sup> [21.1°C (70°F)] |
| Solubility(ies)                                    | : Not available.                      |
| Partition coefficient: n-octanol/water             | : Not applicable.                     |

|                           |   |   |           |           |               |
|---------------------------|---|---|-----------|-----------|---------------|
| Auto-ignition temperature | : |   |           |           |               |
|                           |   | <b>Ingredient name</b>  | <b>°C</b> | <b>°F</b> | <b>Method</b> |
|                           |   |  Methane | 287       | 548.6     | -             |
|                           |   | Ethane  | 287       | 548.6     | -             |

|                           |                   |
|---------------------------|-------------------|
| Decomposition temperature | : Not available.  |
| Viscosity                 | : Not applicable. |

### Particle characteristics

|                      |                   |
|----------------------|-------------------|
| Median particle size | : Not applicable. |
|----------------------|-------------------|

## Section 10. Stability and reactivity

|                 |  |
|-----------------|--|
| 10.1 Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
|-----------------|--|

|                         |                          |
|-------------------------|--------------------------|
| 10.2 Chemical stability | : The product is stable. |
|-------------------------|--------------------------|

|   |   |
|---|---|
| 10.3 Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
|---|---|

|                          |  |
|--------------------------|--|
| 10.4 Conditions to avoid | : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas. |
|--------------------------|--|

|                             |  |
|-----------------------------|--|
| 10.5 Incompatible materials | : May react or be incompatible with oxidizing materials. |
|-----------------------------|--|

|                                       |  |
|---------------------------------------|--|
| 10.6 Hazardous decomposition products | : Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
|---------------------------------------|--|

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

| Product/ingredient name | Result                | Species | Dose                   | Exposure |
|-------------------------|-----------------------|---------|------------------------|----------|
| Carbon monoxide         | LC50 Inhalation Gas.  | Rat     | 1900 mg/m <sup>3</sup> | 4 hours  |
|                         | LC50 Inhalation Gas.  | Rat     | 1807 ppm               | 4 hours  |
| 1,3-Butadiene           | LC50 Inhalation Gas.  | Rat     | 128000 ppm             | 4 hours  |
|                         | LC50 Inhalation Vapor | Rat     | 285 g/m <sup>3</sup>   | 4 hours  |
|                         | LD50 Oral             | Rat     | 5480 mg/kg             | -        |

#### Irritation/Corrosion



## Section 11. Toxicological information

Not available.

### Sensitization

Not available.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

| Product/ingredient name   | OSHA   | IARC   | NTP                                  |
|---------------------------|--------|--------|--------------------------------------|
| Ethylene<br>1,3-Butadiene | -<br>+ | 3<br>1 | -<br>Known to be a human carcinogen. |

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

| Name                | Category                 | Route of exposure | Target organs                                    |
|---------------------|--------------------------|-------------------|--|
| Ethylene<br>Propyne | Category 3<br>Category 3 | -<br>-            | Narcotic effects<br>Respiratory tract irritation |

### Specific target organ toxicity (repeated exposure)

| Name            | Category   | Route of exposure | Target organs |
|-----------------|------------|-------------------|---------------|
| Carbon monoxide | Category 1 | inhalation        | heart         |

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Inhalation.

### Potential acute health effects

**Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Inhalation** : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

**Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Ingestion** : As this product is a gas, refer to the inhalation section.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.

**Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

**Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 11. Toxicological information

**Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

**General** : Causes damage to organs through prolonged or repeated exposure.

**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : May cause genetic defects.

**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

| Product/ingredient name     | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|-----------------------------|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| RGA Calib Mix Cylinder, 1ea | N/A          | N/A            | 128297.0                 | N/A                        | N/A                                 |
| Carbon monoxide             | N/A          | N/A            | 1807                     | N/A                        | N/A                                 |
| 1,3-Butadiene               | 5480         | N/A            | 128000                   | 285                        | N/A                                 |

## Section 12. Ecological information

### 12.1 Toxicity

Not available.

### 12.2 Persistence and degradability

Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name | LogP <sub>ow</sub> | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| Ethylene                | 1.13               | -   | Low       |
| Propyne                 | 0.94               | -   | Low       |
| 1,3-Butadiene           | 1.99               | -   | Low       |

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

## Section 12. Ecological information

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods






**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

|                                   | <b>DOT<br/>Classification</b>  | <b>TDG<br/>Classification</b>  | <b>Mexico<br/>Classification</b>   | <b>IMDG</b>  | <b>IATA</b>  |
|-----------------------------------|--|--|--|--|--|
| <b>UN number</b>                  | UN1954   | UN1954   | UN1954   | UN1954   | UN1954   |
| <b>UN proper shipping name</b>    | Compressed gas, flammable, n.o.s. (Hydrogen, Methane)                                      | COMPRESSED GAS, FLAMMABLE, N. O.S. (Hydrogen, Methane)                                     | GAS COMPRIMIDO INFLAMABLE, N. E.P. (Hydrogen, Methane)                                     | COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Methane)  | Compressed gas, flammable, n.o.s. (Hydrogen, Methane)  |
| <b>Transport hazard class(es)</b> | 2.1<br> | 2.1<br> | 2.1<br> | 2.1<br> | 2.1<br> |
| <b>Packing group</b>              | -  | -  | -  | -  | -  |
| <b>Environmental hazards</b>      | No.  | No.  | No.  | No.  | No.  |

### Additional information

**DOT Classification** : **Reportable quantity** 3333.3 lbs / 1513.3 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.  
**Limited quantity** Yes.  
**Packaging instruction** Exceptions: 306. Non-bulk: 302, 305. Bulk: 314, 315.  
**Quantity limitation** Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.

## Section 14. Transport information

|                                     |   |
|-------------------------------------|---|
| <b>TDG Classification</b>           | : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).<br><b><u>Explosive Limit and Limited Quantity Index</u></b> 0.125<br><b><u>ERAP Index</u></b> 3000<br><b><u>Passenger Carrying Vessel Index</u></b> Forbidden<br><b><u>Passenger Carrying Road or Rail Index</u></b> Forbidden<br><b><u>Special provisions</u></b> 16 |
| <b>Mexico Classification</b>        | : <b><u>Special provisions</u></b> 274  |
| <b>IMDG</b>                         | : <b><u>Emergency schedules</u></b> F-D, S-U<br><b><u>Special provisions</u></b> 274, 392   |
| <b>IATA</b>                         | : <b><u>Quantity limitation</u></b> Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.<br><b><u>Special provisions</u></b> A1, A807   |
| <b>Special precautions for user</b> | : <b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.   |

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

|  |   |
|--|---|
| <b>U.S. Federal regulations</b>                                      | : <b>TSCA 8(a) PAIR:</b> pentane<br><b>TSCA 8(a) CDR Exempt/Partial exemption:</b> Not determined<br><b>Clean Air Act (CAA) 112 regulated flammable substances:</b> Hydrogen; Methane; Ethane; Ethylene; Propane; Acetylene; Propylene; Allene; Propyne                         |
| <b>Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)</b> | : Listed  |
| <b>Clean Air Act Section 602 Class I Substances</b>                  | : Not listed  |
| <b>Clean Air Act Section 602 Class II Substances</b>                 | : Not listed  |
| <b>DEA List I Chemicals (Precursor Chemicals)</b>                    | : Not listed  |
| <b>DEA List II Chemicals (Essential Chemicals)</b>                   | : Not listed  |
| <b><u>SARA 302/304</u></b>   |   |
| <b><u>Composition/information on ingredients</u></b>                 |   |
| No products were found.  |   |
| <b>SARA 304 RQ</b>   | : Not applicable.   |
| <b><u>SARA 311/312</u></b>   |   |
| <b>Classification</b>  | : FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS<br>GERM CELL MUTAGENICITY - Category 1<br>CARCINOGENICITY - Category 1A<br>TOXIC TO REPRODUCTION - Category 1A<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 |

## Section 15. Regulatory information

### Composition/information on ingredients

| Name            | %         | Classification  |
|-----------------|-----------|---|
| Nitrogen        | ≥50 - ≤75 | GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Hydrogen        | ≥10 - ≤25 | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Methane         | ≤10       | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Ethane          | ≤5        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Carbon dioxide  | ≤5        | GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Ethylene        | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3   |
| Propane         | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Carbon monoxide | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS<br>ACUTE TOXICITY (inhalation) - Category 3<br>TOXIC TO REPRODUCTION - Category 1A<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 |
| Acetylene       | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Propylene       | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Allene          | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS   |
| Propyne         | ≤3        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3   |
| 1,3-Butadiene   | ≤1        | FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Compressed gas<br>SIMPLE ASPHYXIANTS<br>GERM CELL MUTAGENICITY - Category 1B<br>CARCINOGENICITY - Category 1A  |

### SARA 313

|                                 | Product name  | CAS number | %  |
|---------------------------------|---------------|------------|----|
| Form R - Reporting requirements | Ethylene      | 74-85-1    | ≤3 |
|                                 | Propylene     | 115-07-1   | ≤3 |
|                                 | 1,3-Butadiene | 106-99-0   | ≤1 |
| Supplier notification           | Ethylene      | 74-85-1    | ≤3 |
|                                 | Propylene     | 115-07-1   | ≤3 |
|                                 | 1,3-Butadiene | 106-99-0   | ≤1 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

#### Massachusetts

: The following components are listed: NITROGEN; HYDROGEN; METHANE; ETHANE; CARBON DIOXIDE; ETHYLENE; PROPANE; CARBON MONOXIDE; ACETYLENE; PROPYLENE; PROPYNE

#### New York

: None of the components are listed.

## Section 15. Regulatory information

- New Jersey** : The following components are listed: NITROGEN; HYDROGEN; METHANE; ETHANE; CARBON DIOXIDE; ETHYLENE; PROPANE; CARBON MONOXIDE; ACETYLENE; PROPYLENE; PROPADIENE; METHYL ACETYLENE; 1,3-BUTADIENE
- Pennsylvania** : The following components are listed: NITROGEN; HYDROGEN; METHANE; ETHANE; CARBON DIOXIDE; ETHENE; PROPANE; CARBON MONOXIDE; ETHYNE; 1-PROPENE; 1-PROPYLE

### California Prop. 65

**⚠ WARNING:** This product can expose you to chemicals including 1,3-butadiene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Carbon monoxide and n-hexane, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

| <b>Ingredient name</b>                       | <b>No significant risk level</b> | <b>Maximum acceptable dosage level</b> |
|--|----------------------------------|--|
| Carbon monoxide<br>1,3-butadiene<br>n-hexane | -<br>Yes.<br>-                   | -<br>-<br>Yes.                         |

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

- Australia** : Not determined.
- Canada** : All components are listed or exempted.
- China** : Not determined.
- Japan** : **Japan inventory (CSCL):** Not determined.  
**Japan inventory (ISHL):** All components are listed or exempted.
- New Zealand** : Not determined.
- Philippines** : Not determined.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Thailand** : All components are listed or exempted.
- Turkey** : Not determined.
- United States** : All components are active or exempted.
- Viet Nam** : All components are listed or exempted.

## Section 16. Other information

### Procedure used to derive the classification

| Classification  | Justification         |
|---|-----------------------|
| FLAMMABLE GASES - Category 1                                    | Calculation method    |
| GASES UNDER PRESSURE - Compressed gas                           | On basis of test data |
| SIMPLE ASPHYXIANTS  | Expert judgment       |
| GERM CELL MUTAGENICITY - Category 1                             | Calculation method    |
| CARCINOGENICITY - Category 1A                                   | Calculation method    |
| TOXIC TO REPRODUCTION - Category 1A                             | Calculation method    |
| SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 | Calculation method    |

### History

**Date of issue/Date of revision** : 08/23/2024

**Date of previous issue** : 12/19/2021

**Version** : 8

**Key to abbreviations** : ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973  
 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 UN = United Nations

Indicates information that has changed from previously issued version.

### Notice to reader

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