# SAFETY DATA SHEET

Refinery Gas Test Sample, Part Number 5080-8755

## Section 1. Identification

<table>
<thead>
<tr>
<th>Product identifier</th>
<th>Refinery Gas Test Sample, Part Number 5080-8755</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part no.</td>
<td>5080-8755</td>
</tr>
<tr>
<td>Material uses</td>
<td>Reagents and Standards for Analytical Chemistry Laboratory Use A pressurized gas cylinder containing 1 liter</td>
</tr>
<tr>
<td>Supplier/Manufacturer</td>
<td>Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770</td>
</tr>
<tr>
<td>Emergency telephone number (with hours of operation)</td>
<td>CHEMTREC®: 1-800-424-9300</td>
</tr>
</tbody>
</table>

## Section 2. Hazard identification

### Classification of the substance or mixture

- **H220**: FLAMMABLE GASES - Category 1
- **H280**: GASES UNDER PRESSURE - Compressed gas
- **H332**: ACUTE TOXICITY (inhalation) - Category 4
- **H360**: TOXIC TO REPRODUCTION - Category 1
- **H372**: SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
- **H412**: AQUATIC HAZARD (LONG-TERM) - Category 3

### GHS label elements

**Hazard pictograms**

![Flammable gas](image)

**Signal word**: Danger

**Hazard statements**

- H220 - Extremely flammable gas.
- H280 - Contains gas under pressure; may explode if heated.
- H332 - Harmful if inhaled.
- H360 - May damage fertility or the unborn child.
- H372 - Causes damage to organs through prolonged or repeated exposure. (heart)
- H412 - Harmful to aquatic life with long lasting effects.
  May displace oxygen and cause rapid suffocation.

### Precautionary statements

#### 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.
- P273 - Avoid release to the environment.
- 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 a fire, use dry chemical, carbon dioxide (CO2) or foam fire extinguisher.
- P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.

#### Storage

- P403 - Store in a well-ventilated place.
Section 2. Hazard identification

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. Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: > 60% Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 82%

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredient name</td>
<td>% (v/v)</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Isopentane</td>
<td>1 - 5</td>
</tr>
<tr>
<td>pentane</td>
<td>0.1 - 1</td>
</tr>
<tr>
<td>Ethylene</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

Section 4. First-aid measures

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 necessary, call a poison center or physician. 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.

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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

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

Inhalation: Harmful if inhaled. 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
Section 4. First-aid measures

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

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

Extinguishing media

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

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. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

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

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 5. Fire-fighting measures

Remark
Dangerous fire and explosion risk.

Section 6. Accidental release measures

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".

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). Water polluting material. May be harmful to the environment if released in large quantities.

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

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. Avoid release to the environment. 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.

**Conditions for safe storage, including any incompatibilities:** 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.
## Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| **Carbon monoxide** | CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 25 ppm 8 hours. 8 hrs OEL: 29 mg/m³ 8 hours.  
CA British Columbia Provincial (Canada, 1/2021).  
TWA: 25 ppm 8 hours.  
STEL: 100 ppm 15 minutes.  
CA Ontario Provincial (Canada, 6/2019).  
TWA: 25 ppm 8 hours.  
CA Quebec Provincial (Canada, 7/2019).  
TWAEV: 35 ppm 8 hours.  
TWAEV: 40 mg/m³ 8 hours.  
STEV: 200 ppm 15 minutes.  
STEV: 230 mg/m³ 15 minutes.  
CA Saskatchewan Provincial (Canada, 7/2013).  
STEL: 190 ppm 15 minutes.  
TWA: 25 ppm 8 hours. | |
| **Isopentane** | CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 600 ppm 8 hours. 8 hrs OEL: 1770 mg/m³ 8 hours.  
CA British Columbia Provincial (Canada, 1/2021).  
TWA: 1000 ppm 8 hours.  
CA Ontario Provincial (Canada, 6/2019).  
TWA: 1000 ppm 8 hours.  
CA Saskatchewan Provincial (Canada, 7/2013).  
STEL: 750 ppm 15 minutes.  
TWA: 600 ppm 8 hours. | |
| **Pentane** | CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 600 ppm 8 hours. 8 hrs OEL: 1770 mg/m³ 8 hours.  
CA British Columbia Provincial (Canada, 1/2021).  
TWA: 1000 ppm 8 hours.  
CA Ontario Provincial (Canada, 6/2019).  
TWA: 1000 ppm 8 hours.  
CA Quebec Provincial (Canada, 7/2019).  
TWAEV: 120 ppm 8 hours.  
TWAEV: 350 mg/m³ 8 hours.  
CA Saskatchewan Provincial (Canada, 7/2013).  
STEL: 750 ppm 15 minutes.  
TWA: 600 ppm 8 hours. | |
| **Ethylene** | CA British Columbia Provincial (Canada, 1/2021).  
TWA: 200 ppm 8 hours.  
CA Ontario Provincial (Canada, 6/2019).  
TWA: 200 ppm 8 hours.  
CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 229 mg/m³ 8 hours. 8 hrs OEL: 200 ppm 8 hours. | |
### Section 8. Exposure controls/personal protection

| **Appropriate engineering controls** | CA Saskatchewan Provincial (Canada, 7/2013).  
STEL: 250 ppm 15 minutes.  
TWA: 200 ppm 8 hours.  
CA Quebec Provincial (Canada, 7/2019).  
Oxygen Depletion [Asphyxiant]. |
|--------------------------------------|---------------------------------------------------------------------------------|

**Environmental exposure 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.

**STEL**: 250 ppm 15 minutes.  
**TWA**: 200 ppm 8 hours.

Emphasizing 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.

**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**: Odorless.
- **Odor threshold**: Not available.
- **pH**: Not applicable.
- **Melting point/freezing point**: -259°C (-434.2°F)
- **Boiling point, initial boiling point, and boiling range**: -253°C (-423.4°F)
- **Flash point**: Not applicable.
- **Evaporation rate**: Not available.
- **Flammability**: Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Dangerous fire and explosion risk.
- **Lower and upper explosion limit/flammability limit**: Lower: 4%  
  Upper: 74.2%
- **Vapor pressure**: Not available.
- **Relative vapor density**: 0.07 [Air = 1]
- **Relative density**: Not applicable.
- **Solubility**: Not available.
- **Partition coefficient: n-octanol/water**: Not applicable.
- **Auto-ignition temperature**: 570°C (1058°F)
- **Decomposition temperature**: Not available.
- **Viscosity**: Not available.
- **Particle characteristics**: Not applicable.
- **Median particle size**: Not applicable.

**Section 10. Stability and reactivity**

- **Reactivity**: No specific test data related to reactivity available for this product or its ingredients.
- **Chemical stability**: The product is stable.
- **Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur.
- **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.
- **Incompatible materials**: May react or be incompatible with oxidizing materials. Reactive or incompatible with the following materials: acids and alkalis.
- **Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>1900 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>1807 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapor</td>
<td>Rat - Male, Female</td>
<td>&gt;2000 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td>Isopentane</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat - Male, Female</td>
<td>364 g/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td>pentane</td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Irritation/Corrosion

Not available.

#### Sensitization

Not available.

#### Mutagenicity

**Conclusion/Summary**: Not available.

#### Carcinogenicity

**Conclusion/Summary**: Not available.

#### Reproductive toxicity

**Conclusion/Summary**: Not available.

#### Teratogenicity

**Conclusion/Summary**: Not available.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopentane</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>pentane</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>Ethylene</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>Category 1</td>
<td>inhalation</td>
<td>heart</td>
</tr>
</tbody>
</table>

### Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopentane</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>pentane</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

### 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.
Section 11. Toxicological information

Inhalation: Harmful if inhaled. 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

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: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinery Gas Test Sample, Part Number 5080-8755</td>
<td>60833.3</td>
<td>N/A</td>
<td>14094.6</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>N/A</td>
<td>N/A</td>
<td>1807</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Isopentane</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>280</td>
<td>N/A</td>
</tr>
<tr>
<td>pentane</td>
<td>2500</td>
<td>N/A</td>
<td>N/A</td>
<td>364</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 09/29/2021  Date of previous issue: 07/03/2020  Version: 8
Section 12. Ecological information

**Toxicity**
Not available.

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopentane</td>
<td>OECD 301F Ready Biodegradability - Manometric Respirometry Test</td>
<td>71.43 % - Readily - 28 days</td>
<td>25 to 33 mg/l</td>
<td>-</td>
</tr>
<tr>
<td>Pentane</td>
<td>OECD 301F Ready Biodegradability - Manometric Respirometry Test</td>
<td>87 % - Readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopentane</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>Pentane</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopentane</td>
<td>3</td>
<td>171</td>
<td>low</td>
</tr>
<tr>
<td>Pentane</td>
<td>3.45</td>
<td>171</td>
<td>low</td>
</tr>
<tr>
<td>Ethylene</td>
<td>1.13</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

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

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

Section 13. Disposal considerations

**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. Empty pressure vessels should be returned to the supplier. 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.
Section 14. Transport information

<table>
<thead>
<tr>
<th></th>
<th>TDG Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1954</td>
<td>UN1954</td>
<td>UN1954</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Ethane, Isobutane)</td>
<td>COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Ethane, Isobutane)</td>
<td>Compressed gas, flammable, n.o.s. (Hydrogen, Ethane, Isobutane)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>

Proof of classification statement: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

Additional information

**TDG Classification**

- Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
- **Explosive Limit and Limited Quantity Index**: 0.125
- **ERAP Index**: 3000
- **Passenger Carrying Vessel Index**: Forbidden
- **Passenger Carrying Road or Rail Index**: Forbidden
- **Special provisions**: 16

**IMDG**

- **Emergency schedules**: F-D, S-U
- **Special provisions**: 274, 392

**IATA**

- **Special provisions**: A1, A807

**Special precautions for user**

- **Transport within user’s premises**: 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

**Canadian lists**

**Canadian NPRI**

- The following components are listed: butane (all isomers); butene (all isomers); propane; carbon monoxide; butene (all isomers); butene (all isomers); butane (all isomers); pentane (all isomers); propylene; pentane (all isomers); ethylene

**CEPA Toxic substances**

- The following components are listed: methane; carbon dioxide

**International regulations**

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

Not listed.

**Montreal Protocol**

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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 : All components are listed or exempted.
Canada : All components are listed or exempted.
China : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : Japan inventory (CSCL): All components are listed or exempted.
        Japan inventory (ISHL): All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
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

History
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Key to abbreviations : ATE = Acute Toxicity Estimate
                        BCF = Bioconcentration Factor
                        GHS = Globally Harmonized System of Classification and Labelling of Chemicals
                        HPR = Hazardous Products Regulations
                        IATA = International Air Transport Association
                        IBC = Intermediate Bulk Container
                        IMDG = International Maritime Dangerous Goods
                        LogPow = logarithm of the octanol/water partition coefficient
                        N/A = Not available
                        UN = United Nations

Procedure used to derive the classification
## Section 16. Other information

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References: Not available.

⚠️ Indicates information that has changed from previously issued version.

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