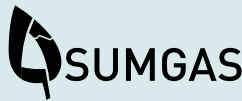




Refrigerant C10



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

1.1. Product Identifier Product Name: SUMGAS C10	1.4. Emergency Telephone Number Emergency Number: 1-800-424-9300 CHEMTREC – TOLL FREE 24 HOUR EMERGENCY TELEPHONE NUMBER
1.2. Intended Use of the Product Use of the Substance/Mixture: Refrigerant	
1.3. Name, Address, and Telephone of the Responsible Party Company Ecosum LLC. 500 Brickell Ave Miami, FL 33131	

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture Classification (GHS-US) Simple Asphy Flam. Gas 1 H220 Liquefied gas H280	Precautionary Statements (GHS-US) : P210 - Keep away from heat, hot surfaces, open flames, sparks - 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.
2.2. Label Elements GHS-US Labeling Hazard Pictograms (GHS-US): GHS02 GHS04	2.3. Other Hazards No additional information available
 	2.4. Unknown Acute Toxicity (GHS-US) No data available
Signal Word (GHS-US): Danger Hazard Statements (GHS-US) : H220 - Extremely flammable gas H280 - Contains gas under pressure; may explode if heated H380 - May displace oxygen and cause rapid suffocation	

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance
Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Petroleum gases, liquefied	(CAS No)68476-85-7	100	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280

Full text of H -phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures First-aid Measures After Inhalation: When symptoms occur, go into open air and ventilate suspected area. Immediately call a POISON CENTER or doctor/physician. First-aid Measures After Skin Contact: If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention. First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. First-aid Measures After Ingestion: Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.	4.2. Most important symptoms and effects, both acute and delayed Symptoms/Injuries: Gas can be toxic as a simple asphyxiant by displacing oxygen from the air. Symptoms/Injuries After Inhalation: Asphyxiant gas. Symptoms/Injuries After Skin Contact: May cause frostbite. Symptoms/Injuries After Eye Contact: Contact with the liquefied gas causes frostbite. Symptoms/Injuries After Ingestion: Ingestion is an unlikely route of exposure for a gas. Chronic Symptoms: Not available
4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed If exposed or concerned, get medical advice and attention	

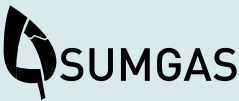
SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing Media Suitable Extinguishing Media: Water spray, dry powder, or carbon dioxide can be directed at flame to reduce fire intensity. Unsuitable Extinguishing Media: Do not extinguish flames unless leak can be stopped.	5.2. Special Hazards Arising From the Substance or Mixture Fire Hazard: flammable gas. Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire, increasing risk of burns and injuries. Reactivity: Contains gas under pressure; may explode if heated.
5.3. Advice for Firefighters Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Firefighting Instructions: If possible, stop flow of gas. Use water to cool fire - exposed tanks, surroundings and to protect personnel working on shut off. If leak cannot be stopped, evacuate area. Fight fire remotely due to the risk of explosion Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.	

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures General Measures: Use special care to avoid static electric charges. Keep away from open flames, hot surfaces and sources of ignition. No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe gas.	6.1.1. For Non-emergency Personnel Protective Equipment: Use appropriate personal protection equipment (PPE). Emergency Procedures: Evacuate unnecessary personnel. Eliminate ignition sources.
6.1.2. For Emergency Responders Protective Equipment: Equip clean up crew with proper protection. Emergency Procedures: Stop leak if safe to do so. Ventilate area.	

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.2. Environmental Precautions

Avoid release to the environment.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Stop leak without risks if possible.

Methods for Cleaning Up: Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Precautions for Safe Handling: Personnel should be trained to regularly inspect equipment such as pumps, hoses, and valves. Do not breathe gas. Ensure there is adequate ventilation. Close valve after each use and when empty. Open valve slowly to avoid pressure shock.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Keep at temperatures below 52°C / 125°F.

Storage Conditions: Store in a dry, cool and well - ventilated place. Keep in fireproof place. Store locked up. Store away from strong oxidizing agents, chlorine dioxide, excessive heat and/or static discharge.

Incompatible Products: Heat sources. Oxidizing agents.

Special Rules on Packaging: Store in containers fitted with suitable release valve.

7.3. Specific End Use(s): Refrigerant

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Petroleum gases, liquefied (68476-85-7)		
USA	ACGIH	ACGIH TWA (ppm)
USA	NIOSH	NIOSH REL (TWA) (mg/m³)
USA	NIOSH	NIOSH REL (TWA) (ppm)
USA	IDLH	US IDLH (ppm)
USA	OSHA	OSHA PEL (TWA) (mg/m³)
USA	OSHA	OSHA PEL (TWA) (ppm)

8.2. Exposure Controls

Appropriate Engineering Control : Alarm detectors should be used when toxic and/or flammable gases maybe released.

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Ensure all national/local regulations are observed.

Personal Protective Equipment: Gas mask. Protective goggles. Gloves. Protective clothing.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear working gloves when handling gas containers.

Eye Protection: Safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus in oxygen deficient atmospheres

Thermal Hazard Protection: Wear cold insulating gloves

SECTION 9: FIRE FIGHTING MEASURES

9.1. Information on Basic Physical and Chemical Properties

Physical State: Gas

Appearance: Clear, colorless gas

Odor: Odorless

Odor Threshold: No data available

pH: No data available

Relative Evaporation Rate (butylacetate=1): No data available

Melting Point: No data available

Freezing Point: - 151.67 °C (305°F)

Boiling Point: - 46.67 °C (52°F)

Flash Point: No data available

Auto-ignition Temperature: 467.22 °C (873°F)

Decomposition Temperature : No data available

Flammability (solid, gas): No data available

Vapor Pressure: 861.8 kPa (139 psi) at 21.1 °C (70°F)

Relative Vapor Density at 20 °C : 1.52

Relative Density: 0.5066 (water =1)

Specific Gravity: 0.5066

Solubility: No data available

Log Pow: < 1

Log Kow: No data available

Viscosity, Kinematic: No data available

Viscosity, Dynamic: No data available

Explosive Properties: No data available

Oxidizing Properties: No data available

Explosive Limits: No data available

Lower Flammable Limit: 2.15 %

Upper Flammable Limit: 9.6 %

9.2. Other Information

Gas group : Liquefied gas

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Contains gas under pressure; may explode if heated. Vapor may ignite if exposed to static discharge.

10.2 Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Heat. Sparks. Static Discharge.

10.5 Incompatible Materials: Oxidizing agents such as chlorine, permanganates and dichromates.

10.6 Hazardous Decomposition Products: Carbon oxides (CO, CO2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity : Not classified

Petroleum gases, liquefied (68476-85-7)

LC50 Inhalation Rat (mg0/l)

658 mg/l/4h

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Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: Not classified
Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: Asphyxiant gas.
Symptoms/Injuries After Skin Contact: May cause frostbite. Exposure may produce an allergic reaction.
Symptoms/Injuries After Eye Contact: Contact with the liquefied gas causes frostbite.
Symptoms/Injuries After Ingestion: Ingestion is an unlikely route of exposure for a gas.
Chronic Symptoms: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity: Harmful to aquatic life with long lasting effects.

12.2. Persistence and Degradability: No additional information available

12.3. Bioaccumulative Potential

Petroleum gases, liquefied (68476-85-7)

Log Pow2.3

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects
No additional information available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.
Additional Information: Empty containers may contain flammable or combustible vapors. Do not reuse without adequate precautions.

SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/IMDG/DOT

14.1. UN Number Identification Number: UN1075

14.2. UN Proper Shipping Name
DOT Proper Shipping Name: Petroleum gases, liquefied or Petroleum gases, liquefied
Hazard Labels (DOT): 2.1 - Flammable gases
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : 304
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
Marine pollutant: No

14.3. Additional Information
Emergency Response Guide (ERG) Number: 115
Transport by Sea DOT Vessel Stowage Location: E - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”
Air Transport DOT Quantity Limitations Passenger Aircraft/Rail (49 CFR 173.27): Forbidden
DOT Quantity Limitations Cargo Aircraft Only (49 CFR 175.75): 150 kg

SECTION 15: STABILITY AND REACTIVITY

15.1 US Federal Regulations

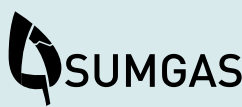
Chemical Ingredients:

Sumgas C Replacement Refrigerant Cylinders	
SARA Section 311/312 Hazard Classes	Fire hazard Sudden release of pressure hazard
Petroleum gases, liquefied (68476-85-7) Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2 US State Regulations

Petroleum gases, liquefied (68476-85-7)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min) U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr) U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Occupational Exposure Limits - TWAs U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category1 U.S. - Massachusetts - Oil &Hazardous Material List - Groundwater Reportable Concentration - Reporting Category2 U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity U.S. - Massachusetts - Oil & Hazardous Material List - Soil ReportableConcentration - Reporting Category1 U.S. -Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2 U.S.- Massachusetts - Right To Know List U.S. - Michigan - Occupational Exposure Limits - TWAs U.S. - Minnesota - Hazardous Substance List U.S. - Minnesota - Permissible Exposure Limits - TWAs U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances U.S. - New Jersey - Environmental Hazardous Substances List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New Jersey - Special Health Hazards Substances List U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS) U.S. - New York - Occupational Exposure Limits - TWAs U.S. - Ohio - Accidental Release Prevention - Threshold Quantities

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Petroleum gases, liquefied (68476-85-7)
U.S. - Oregon - Permissible Exposure Limits - TWAs U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Tennessee - Occupational Exposure Limits - TWAs U.S. - Texas - Effects Screening Levels - Long Term U.S. - Texas - Effects Screening Levels - Short Term U.S. - Vermont - Permissible Exposure Limits - TWAs U.S. - Washington - Permissible Exposu re Limits - STELs U.S. - Washington - Permissible Exposure Limits - TWAs

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date: 3/22/2019
Other Information: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases:

Compressed gas	Gases under pressure Compressed gas
Flam. Gas 1	Flammable gases Category 1
Liquefied gas	Gases under pressure Liquefied gas
Simple Asphy	Simple Asphyxiant
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.