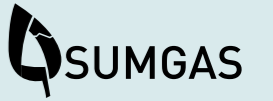


Refrigerant YF



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

1.1. Product Identifier

Product Name: SUMGAS YF™

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

1.4. Emergency Telephone Number

Emergency Number: 1-800-424-9300
CHEMTREC – TOLL FREE 24 HOUR EMERGENCY
TELEPHONE NUMBER

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Simple Asphy
Flam. Gas 1 H220
Liquefied gas H280
Skin Sens. 1 H317

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms(GHS-US)



Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) :

H220 - Extremely flammable gas
H280 - Contains gas under pressure;
may explode if heated
H317 - May cause an allergic skin reaction
May displace oxygen and cause rapid suffocation

Precautionary Statements(GHS-US)

P210 - Keep away from heat, hot surfaces, open flames, sparks - No smoking.
P261 - Avoid breathing gas.

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	99	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Trade Secret		1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

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. 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.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water spray, dry powder, or carbon dioxide can be directed at flame area 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: Extremely flammable gas.

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

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

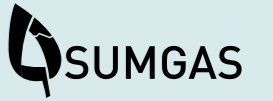
5.3. Advice for Firefighters

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.

Refrigerant YF



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 cleanup crew with proper protection.

Emergency Procedures: Stop leak if safe to do so. Ventilate area.

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 again 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)	1000 ppm
USA	NIOSH	NIOSH REL (TWA) (mg/m ³)	1800 mg/m ³
USA	NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA	IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
USA	OSHA	OSHA PEL (TWA) (mg/m ³)	1800 mg/m ³
USA	OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

8.2. Exposure Controls

Appropriate Engineering Controls: Alarm detectors should be used when toxic and/or flammable gases may be released. Emergency eyewash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Hand Protection: Wear working gloves when handling gas containers.



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 whenever exposure may exceed established Occupational Exposure Limits.

Thermal Hazard Protection: Wear cold insulating gloves.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State: Gas

Appearance: Clear, colorless gas.

Odor: Odor added.

Odor Threshold: No data available

pH: No data available

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

Melting Point: No data available

Freezing Point: - 176.67 °C (- 286 °F)

Boiling Point: - 37.8 °C (- 36.1 °F)

Flash Point: No data available

Auto-ignition Temperature: 674.44 °C (1246 °F)

Decomposition Temperature: No data available

Flammability (solid, gas): No data available

Vapor Pressure: 586.05 kPa (85 psi) at 21.1 °C (70 °F)

Relative Vapor Density at 20 °C: 1.64

Relative Density: 0.53 (water = 1)

Specific Gravity: 0.53

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 Limit: No data available

Lower Flammable Limit: 2.6%

Upper Flammable Limit: 9 %

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).

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Propane (74-98-6)

LC50 Inhalation Rat 658 mg/l/4h

Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: Not classified
Respiratory or Skin Sensitization: May cause an allergic skin reaction
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.

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

SUMGASyTM
Log Pow ←-1

Petroleum gases, liquefied (68476-85-7)
Log Pow 2.3

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 Liquefied petroleum gas
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

Special Permits : DOT-SP 13275

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

SUMGASTM SUMGASy^f	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard Delayed (chronic) health hazard Sudden release of pressure hazard
Trade Secret Listed on the United States TSCA (Toxic Substances Control Act) inventory Petroleum gases, liquefied (68476-85-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2 US State Regulations

Trade Secret
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Texas - Effects Screening Levels - Long Term U.S. - Texas - Effects Screening Levels - Short Term
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 Category 1 U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2 U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1 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

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15.2 US State Regulations

Trade Secret
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
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 Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits- TWAs

SECTION 16: OTHER INFORMATION

Revision date: 1/1/2019

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:

Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 3
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 3	Flammable liquids Category 3
Liquefied gas	Gases under pressure Liquefied gas
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
H220	Extremely flammable gas
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H410	Very toxic to aquatic life with long-lasting effects
H412	Harmful to aquatic life with longlasting effects

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.