Refrigerant D2

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

1.1. Product Identifier TM
Product Name: SUMGAS D2 Refrigerant

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

2.2. Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US): GHS02 GHS04

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.
P272 - Contaminated work clothing should not be allowed out of the workplace. P280 - Wear respiratory protection, cold insulating gloves, eye protection, protective clothing.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P321 - Specific treatment (see Section 4).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well - ventilated place.
P410+P403 - Protect from sunlight. Store in a well - ventilated place.
P501- Dispose of contents/container according to local, regional, national, and international regulations.

2.3. Other Hazards
Aquatic Chronic 3
H412 - Harmful to aquatic life with long lasting effects
P273 - Avoid release to the environment

2.4. Unknown Acute Toxicity(GHS-US)
No data available

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
Odorant	Proprietary	75	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317
Dye	Proprietary	25	No Hazardous ingredients in accordance to EC regulations

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 b 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.
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.

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SECTION 5: FIRE FIGHTING MEASURES

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. Donot 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.

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)	1000 ppm
USA	NIOSH	NIOSH REL (TWA) (mg/m³)	1800 mg/m³
USA	NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA	IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
USA	OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
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.
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: - 176.67 °C (-286°F)
Boiling Point: - 37.8 °C (-36.°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: 482.6 kPa (70 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 Limits: No data available
Lower Flammable Limit: 2.6 %
Upper Flammable Limit: 9 %

9.2. Other Information
Gas group: Liquefied gas

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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

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.

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

Sumgas D2 Refrigerant 6 oz
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 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

Sumgas D2 Refrigerant 6 oz	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard Delayed (chronic) health hazard Sudden release of pressure hazard
Odorant (Proprietary) 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	

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15.1 US State Regulations

Odorant (Proprietary)
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 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 Reportable Concentration - 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 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, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date: 3/25/2014
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
Aquatic Chronic 3	Hazardous to the aquatic environment-Chronic
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 long lasting 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.