



Safety Data Sheet

Material Name: OCTAFLUOROCYCLOBUTANE

Section 1 - IDENTIFICATION

Manufacturer Information

Electronic Fluorocarbons, LLC
3266 Bergey Road
Hatfield PA 19440

General Information: 215-443-9600
Emergency #: 1-800-535-5053 (Infotrac)
Outside the US: 1-352-323-3500 (Call collect)

Product Identifier: OCTAFLUOROCYCLOBUTANE

Trade Names/Synonyms

CYCLOBUTANE, OCTAFLUORO-; CYCLOOCTAFLUOROBUTANE;
PERFLUOROCYCLOBUTANE; REFRIGERANT C318; R C318; C4F8; RTECS: GU1779500

Chemical Family

halogenated, alicyclic

Product Use

industrial

Restrictions on Use

None known.

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Gas under pressure, Liquefied gas

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

WARNING

Hazard Statement(s)

Contains gas under pressure; may explode if heated

Precautionary Statement(s)

Protect from sunlight and store in well-ventilated place.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	Component	Percent
115-25-3	OCTAFLUOROCYCLOBUTANE	100.0

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Section 4 - FIRST AID MEASURES

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes

Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If a large amount is swallowed, get medical attention.

Note to Physicians

For inhalation, consider oxygen.

Symptoms: Immediate

frostbite, difficulty breathing, suffocation, irregular heartbeat

Symptoms: Delayed

No data available.

Section 5 - FIRE FIGHTING MEASURES

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical

Negligible fire hazard.

Extinguishing Media

carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions

Avoid release to the environment.

Methods for Containment

Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry.

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Cleanup Methods

Do not enter confined spaces unless adequately ventilated. Damaged cylinders should be handled only by specialists.

Section 7 - HANDLING AND STORAGE

Handling Procedures

Wash thoroughly after handling.

Storage Procedures

Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Store and handle in accordance with all current regulations and standards. Keep container tightly closed and in a well-ventilated place. Protect from physical damage. Protect from sunlight. Keep separated from incompatible substances.

Incompatibilities metals

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ACGIH, EU, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Component Biological Limit Values

There are no biological limit values for any of this product's components.

Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Glove Recommendations

Wear insulated gloves.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Physical State: Gas	Appearance: Not available
Color: colorless	Physical Form: gas
Odor: odorless	Odor Threshold: Not available
Taste: tasteless	pH: Not available
Melting/Freezing Point: -39 °C	Boiling Point: -6 °C
Decomposition: Not available	Evaporation Rate: Not available
Vapor Pressure: 2052 mmHg @ 21.1 °C	Vapor Density (air = 1): 7.33
Density: 8.66 g/L @ 21 °C	Water Solubility: 0.014 %
Log KOW: Not available	Auto Ignition: Not available
Viscosity: 0.012 cP @25 °C	Molecular Weight: 200.03
Molecular Formula: C4-F8	

Solvent Solubility

Soluble: ether

Section 10 - STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Possibility of Hazardous Reactions

Will not polymerize.

Incompatible Materials

metals

Decomposition Products

halogenated compounds, oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

RTECS Acute Toxicity (selected)

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Immediate Effects

frostbite, difficulty breathing, suffocation, irregular heartbeat

Delayed Effects

No data available.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

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Material Name: OCTAFLUOROCYCLOBUTANE

Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data

Conflicting mutagenic data available, however octafluorocyclobutane is generally not considered mutagenic.

Reproductive Effects Data

No data available.

Tumorigenic Data

No data available.

Specific Target Organ Toxicity - Single Exposure

respiratory system

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

respiratory disorders

Additional Data

Stimulants such as epinephrine may induce ventricular fibrillation.

*****Section 12 - ECOLOGICAL INFORMATION*****

Component Analysis - Aquatic Toxicity

No LOEL ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Environmental Media

No data available.

*****Section 13 - DISPOSAL CONSIDERATIONS*****

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

*****Section 14 - TRANSPORT INFORMATION*****

US DOT Information

Shipping Name: Octafluorocyclobutane

UN/NA #: UN1976 **Hazard Class:** 2.2

Required Label(s): 2.2

IMDG Information

Shipping Name: Octafluorocyclobutane

UN #: UN1976 **Hazard Class:** 2.2

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Section 15 - REGULATORY INFORMATION

Component Analysis

U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312 Hazardous Categories

Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactive: No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
OCTAFLUOROCYCLOBUTANE	115-25-3	No	No	No	Yes	No

Not regulated under California Proposition 65

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
OCTAFLUOROCYCLOBUTANE	115-25-3	Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No

Section 16 - OTHER INFORMATION

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

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Other Information

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