

Material Name: Octafluorocyclopentene



ELECTRONIC
FLUOROCARBONS, LLC

Safety Data Sheet

Material Name: OCTAFLUOROCYCLOPENTENE

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: OCTAFLUOROCYCLOPENTENE

Trade Names/Synonyms

CYCLOPENTENE, OCTAFLUORO-; CYCLOOCTAFLUOROPENTENE;
PERFLUOROCYCLOPENTENE; C5F8

Chemical Family

halogenated, alicyclic

Product Use

industrial

Restrictions on Use

None known.

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Gas under pressure, Liquefied gas
Toxic if swallowed
Toxic in contact with skin
Causes skin irritation
May cause drowsiness or dizziness
May cause respiratory irritation
May cause damage to organs (central nervous system, cardiovascular system, eye, respiratory system, skin)
May cause damage to organs (liver, lung, skin) through prolonged or repeated exposure

GHS LABEL ELEMENTS



Symbol(s)

Signal Word

DANGER

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Hazard Statement(s)

Toxic if swallowed, in contact with skin or if inhaled
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause damage to organs (central nervous system, cardiovascular system, eye, respiratory system, skin)
May cause damage to organs (liver, lungs, skin) through prolonged or repeated exposure
May displace oxygen and cause rapid suffocation
Contains gas under pressure; may explode if heated

Precautionary Statement(s)

Do not breath dust/fume/gas/mist/vapors/spray
Wash skin thoroughly after handling
Do not eat, drink, or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/ protective clothing/ eye protection/ face protection
If swallowed: immediately call a poison center/ doctor
If on skin: Wash with plenty of soap and water
If inhaled: Remove person to fresh air and keep comfortable for breathing
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Call a POISON CENTER or doctor/ physician if exposed or you feel unwell
Specific treatment (see supplemental first aid instructions on this label)
Take off contaminated clothing immediately and wash before reuse
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Dispose of contents/ container to an approved waste disposal plant

Other hazards not contributing to this classification

Risk of explosion if heated under confinement

* * *Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS* * *

CAS#	Component	Percent	Classification (GHS-US)
559-40-0	OCTAFLUOROCYCLOPENTENE	100.0	Simple Asphyxiant Acute Tox 3 (Oral) Acute Tox 3 (Dermal) Acute Tox 3 (Inhalation) Skin Irritant. 2 Eye Irritant. 2A STOT SE 3 STOT SE 3 STOT SE 2 STOT RE 2

Mixture : Not Applicable

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Section 4 - FIRST AID MEASURES

Description of First Aid Measures

- First-aid measures general : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get immediate medical advice/attention.
- First-aid measures after skin contact : Wash with plenty of soap and water. Get immediate medical advice/attention.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
- First-aid measures after ingestion : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get immediate medical advice/attention.

Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.
- Symptoms/injuries after inhalation : Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Nausea.

Indication of any of immediate medical attention and special treatment needed

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

See Section 9 for Flammability Properties

Extinguishing Media

- Suitable extinguishing media : Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire.

Special Hazards arising from the substance or mixture

- Fire hazard : Thermal decomposition generates: Carbon oxides. Hydrogen fluoride.
- Explosion hazard : Risk of explosion if heated under confinement. Use water spray or fog for cooling exposed containers.

Advice for Firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

Instructions

Protection during firefighting : Wear gas tight chemically protective clothing in combination with self-contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection".

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Section 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

General measures : Evacuate unnecessary personnel. Ensure adequate air ventilation. May cause suffocation by reducing oxygen available for breathing. Do not breathe gas, fumes, vapor or spray.

For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

Methods and material for containment and cleaning up

For containment : Stop leak if safe to do so. Dike for recovery or absorb with appropriate material.

Methods for cleaning up : Take up large spills with pump or vacuum and finish with dry chemical absorbent. Use explosion-proof equipment. Take up small spills with dry chemical absorbent. Sweep or shovel spills into appropriate container for disposal. Ventilate area.

Other information : For disposal of solid materials or residues refer to section 13 - "Disposal considerations".

Reference to other sections

No additional information available

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Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Close valve after each use and when empty.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the workstation. Do not breathe fumes, gas, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes.
- Safe handling of the gas receptacle : Securely chain cylinders when in use and protect against physical damage.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Conditions for Safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Protect from sunlight. Do not expose to temperatures exceeding 50 °C. Keep container closed when not in use.
- Incompatible materials : Refer to Section 10 on Incompatible Materials.
- Storage area : Store in dry, cool, well-ventilated area.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Not additional information available

Exposure controls

- Appropriate engineering controls : Ensure good ventilation of the workstation. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Systems under pressure should be regularly checked for leakage. Oxygen detectors should be used when asphyxiating gases may be released. Gas detectors should be used when toxic gases may be released.
- Hand protection : Protective gloves. 29 CFR 1910.138: Hand Protection.
- Eye protection : Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection.
- Other information : Safety shoes. 29 CFR 1910.136: Foot Protection.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	: Liquid
Color	: No data available
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: < -70 °C
Freezing point	: No data available
Boiling point	: 27 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: 621 mm Hg (@ 20 °C)
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Specific gravity / density	: 1.58 g/ml (@ 25 °C)
Molecular mass	: 212.04 g/mol
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

Other Information

No additional information available.

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Section 10 - STABILITY AND REACTIVITY

Reactivity

No additional information available

Chemical Stability

Stable at normal handling and storage conditions.

Conditions to Avoid

Protect from sunlight. Do not expose to temperature exceeding 50 C. Keep away from heat, spark, and flame.

Possibility of Hazardous Reactions

No additional information available.

Incompatible Materials

Alkali metals. Finely divided metals (Al, Mg, Zn). Strong oxidizing agents.

Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decompositions in case of fire, see Section 5.

Section 11 - TOXICOLOGICAL INFORMATION

Information of toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation: Toxic if inhaled.

Octafluorocyclopentene (559-40-0)	
ATE US (oral)	100.000 mg/kg body weight
ATE US (dermal)	300.000 mg/kg body weight
ATE US (gases)	700.000 ppmV/4h
ATE US (vapors)	3.000 mg/l/4h
ATE US (dust, mist)	0.500 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness. May cause respiratory irritation. May cause damage to organs (central nervous system, cardiovascular system, eye, respiratory system, skin).

Specific target organ toxicity (repeated exposure) : May cause damage to organs (liver, lung, skin) through prolonged or repeated exposure.

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Nausea.

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Section 12 - ECOLOGICAL INFORMATION

Component Analysis –

Aquatic Toxicity

No LOLI 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

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2810 Toxic, liquids, organic, n.o.s. 6.1. II (No packing group for cylinders)

UN-No (DOT) : UN2810

Proper Shipping Name (DOT) : Toxic, liquids, organic, n.o.s.

Transport hazard Class(es)(DOT) : 6.1 – Poison



Packing group (DOT) : II – Medium Danger (Does not apply to cylinders)

DOT Packaging Non-Bulk (49 CFR 173.xxx) :202

DOT Packaging Bulk (49 CFR 173.xxx) :243

DOT Symbols : G – Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : IB2 – authorized IBCs: Metal (31A, 31B, and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 55 C (1.3 bar at 131 F) are authorized.

T11 – 6 178.274(d)(2) Normal178.275(d)(3)

TP2 – a. The maximum degree of filling must not exceed the degree of filling determined by the following: Where: tr is the maximum mean bulk temperature during transport, if it is the temperature in degrees Celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean

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temperature of the liquid during filling (tf) and the maximum mean bulk temperature of the liquid during transportation (tr) both in c=degrees Celsius, b. For liquids transported under ambient conditions may be calculated using the formula: Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

TP13 – Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.

TP27 – A portable tank having a maximum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure of 4 bar or less based on the MAWP of the hazardous material. As defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions

(49 CFR 173.xxx) : 153

DOT Quantity Limitations

Passenger aircraft/rail

(49 CFR 173.27) : 5L

DOT Quantity Limitations

Cargo aircraft only

(49 CFR 175.75) : 60L

DOT Vessel Stowage Location

: B – (i) The material may be stowed “on deck” or “under deck” on a cargo vessel an on a passenger vessel carrying a number of passengers limited to not more that the larger of 25 passengers, or one passenger per each 3 M of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other

: 40 – Stow “clear of living quarters”

Other information:

No supplemental information available.

TDG

No additional information available

Transport by sea

UN-No. (IMDG) : 2810

Proper Shipping Name (IMDG) : TOXIC LIQUID, ORGANIC, N.O.S.

Class (IMDG) : 6.1 – Toxic substances

Packaging group (IMDG) :II – substances presenting medium danger (Does not apply to cylinders)

Air Transport

UN-No. (IATA) : 2810

Proper Shipping Name (IATA) : Toxic liquid, organic, n.o.s.

Class (IATA) : 6.1 – Toxic Substances

Packing Group (IATA) : 1 – Medium Danger

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*****Section 15 - REGULATORY INFORMATION*****

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Component Analysis

U.S. Federal Regulations

Component	CAS	Toxic Substances Control Act (TSCA)
OCTAFLUOROCYCLOPENTENE	559-40-0	S-S – indicates a substance that is identified in a proposed or final Significant New Uses Rule (SNUR) This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR Sec 372.38(a) subject to the reporting requirements of section 313 of the Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA 311/312 Hazardous Categories

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

U.S. State Regulations

Not regulated under California Proposition 65

International Regulations

Canada – Listed on the Canadian Non-Domestic Substance List (NDSL)

EU – No additional information available.

China – Listed on the Inventory of Existing Chemical Substances Produced or Imported in China (IECSC)

Japan – Listed on the Industrial Safety and Health Law (ISHL)

Korea – Listed on the Existing Chemical List (ECL)

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*****Section 16 - OTHER INFORMATION*****

Full text of H-phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhalation) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 2	Specific target organ toxicity (single exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H301	Toxic if swallowed
H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H371	May cause damage to organs
H373	May cause damage to organs through prolonged or repeated exposure
H380	May displace oxygen and cause rapid suffocation

NFPA health hazard

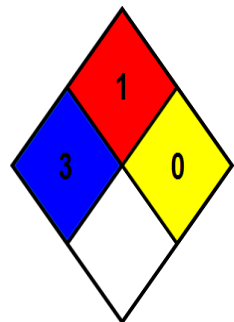
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

NFPA Reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



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

HMIS Ratings: Health: 3 Fire: 1 Reactivity: 0

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Other Information

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