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## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product identifiers

Product name: PERFLUORO-[15]-CROWN-5 ETHER  
Synonyms: Eicosafuoro-[15]-crown-5 ether  
Product number: F15CROWN5  
CAS-No.: 97571-69-2

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: R&D use only

### 1.3 Details of the supplier of the safety data sheet

Company: Exflor Research Corporation  
2350 Double Creek Drive  
ROUND ROCK, TEXAS 78664  
USA

Telephone: +1 512-310-9044

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## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

### 2.2 GHS Label Elements, including precautionary statements

Not a hazardous substance or mixture.

#### Precautionary statement(s)

P261 Avoid breathing fume/ gas /mist/ vapor/ spray.

P264 Wash hands thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

none

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## 3. COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 Substances

Formula:  $C_{10}F_{20}O_5$   
Molecular Weight: 580 g/mol

#### Component:

CAS-No.: 97571-69-2

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## 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### **If inhaled**

Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

#### **In case of skin contact**

Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

#### **In case of eye contact**

Flush eyes with water as a precaution. Ensure adequate flushing of the eyes by separating the eyelids with fingers.

#### **If swallowed**

Do not induce vomiting. Never give anything by mouth to an unconscious person. Allow victim to rinse his mouth with water.

### 4.2 Most important symptoms and effects, both acute and delayed

**Inhalation:** Coughing, wheezing, sneezing, shortness of breath

**Eyes:** Redness, discomfort

**Skin:** Redness, itching

**Ingestion:** Nausea, vomiting

See § 2.2 and § 11.

### 4.3 Indication of any immediate medical attention and special treatment needed

Note to physician: Treat symptomatically and supportively.

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## 5. FIRE FIGHTING MEASURES

### 5.1 Extinguishing media

Water spray, carbon dioxide, dry chemical powder, or alcohol-resistant foam.

### 5.2 Special hazards arising from the substance or mixture

Releases toxic fumes of carbon oxides and hydrogen fluoride.

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment, and emergency measures

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Keep people away from and upwind of spill/ leak. Restrict access to area until completion of clean-up.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to enter drains. If necessary, dike ahead of spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

### 6.3 Methods and materials for containment and cleaning up

Soak up the spill with an inert absorbent material, such as dry lime, sand, or soda ash. Contaminated absorbent material may pose the same hazards as the spilled product. Place in container for disposal according to local regulations.

### 6.4 Reference to other sections

Refer to protective measures listed in § 7 and § 8.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

For precautions, see § 2.2.

Wear gloves and eye protection. Avoid inhalation of vapor or mist. Avoid contact with skin, eyes, and clothing. Wash hands thoroughly after handling.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in cool, dry, and well-ventilated place. Store and handle in accordance with all current regulations and standards. Containers which have been opened must be carefully resealed and kept upright to prevent leakage. Keep separated from incompatible substances (see § 10.5).

### 7.3 Specific use(s)

Apart from the uses mentioned in § 1.2 no other specific uses are stipulated.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Use only in well-ventilated areas. Provide local exhaust or a process enclosure ventilation system. Avoid contact with skin, eyes and clothing.

#### Personal protective equipment

##### Eye/face protection

Wear safety chemical safety goggles and face shield. Provide an emergency eye wash station and quick drench shower in the immediate work area.

##### Skin protection

Handle with appropriate chemical-resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Body protection

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

Respiratory protection not required. Provide local exhaust or process enclosure ventilation system.

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

#### General hygiene considerations

Do not breathe vapors. Avoid contact with skin, eyes, and clothing. Do not eat, drink, or smoke when using this product. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a)	Appearance	clear, colorless liquid
b)	Odor	no data available
c)	Odor threshold	no data available
d)	pH	no data available
e)	Melting/freezing point	no data available
f)	Initial boiling point/range	145 °C (293 °F)
g)	Flash point	N/A
h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapor pressure	no data available
l)	Vapor density	no data available
m)	Relative density	1.78 g/cm <sup>3</sup>
n)	Solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

## 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No unusual reactivity. See § 10.5.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reaction

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Releases toxic fumes of carbon oxides and hydrogen fluoride.

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

#### Skin corrosion/ irritation

Material is expected to have a low order of toxicity from absorption through the skin or if taken internally.

#### Serious eye damage/ irritation

Vapor or mist may be irritating to eyes and mucous membranes.

#### Respiratory or skin sensitization

Vapor or mist may be irritating to upper respiratory tract.

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

No data available

**Specific target organ toxicity – single exposure**

No data available

**Specific target organ toxicity -- repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional information**

To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known.

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**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**12.6 Other adverse effects**

No data available

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**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**

Refer to protective measure listed in § 7 and § 8.

Dispose of in accordance with all applicable federal, state, and local regulations.

Place in a chemical secured landfill or incinerate at 1200°C with a 2 second dwell time or at 1600°C with a 1.5 second dwell time. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Empty containers retain residue and can be dangerous. Disposal must be made according to official regulations.

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**14. TRANSPORTATION INFORMATION****DOT (US) / IMDG / IATA**

Not classified as hazardous for transport

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**15. REGULATORY INFORMATION****US federal information**

Not on TSCA Inventory, For R&D use only.

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**16. OTHER INFORMATION**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Exflur Research Corporation shall not be held liable for any damage resulting from handling or from contact with the above product.