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## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product identifiers

Product name: PERFLUORONONANE  
Synonyms: Eicosafuorononane  
Product number: C9  
CAS-No.: 375-96-2

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

Identified uses: For R&D use only.

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

Company: Exflur 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.

### 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:  $C_9F_{20}$   
Molecular Weight: 488.06 g/mol

#### Component:

CAS-No.: 375-96-2  
Concentration: 98 %

No ingredients are hazardous according to OSHA criteria.  
No components need to be disclosed according to the applicable regulations.

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## 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### General advice

Move out of dangerous area. Consult a physician. Show this safety sheet to the doctor in attendance.

**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**

Immediately flush eyes with plenty of water for at least 15 minutes. 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. Allow victim to drink 2 – 4 cupfuls of water. Call Poison Control center.

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

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.

*If applicable:* If a spill/ release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the US at 1-800-424-8802.

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

Soak up the spill with an inert absorbent material, such as dry lime 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.

Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye/face protection. Use only in well-ventilated areas. Avoid inhalation of vapor or mist. Avoid contact with skin, eyes, and clothing. Keep away from heat and open flames. Do not eat, drink, or smoke when using this product. 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. Empty containers retain residue (powder and/or vapor) and can be dangerous. 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 glasses or 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

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

##### Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### 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 liquid
b)	Odor	
c)	Odor threshold	no data available
d)	pH	no data available
e)	Melting/freezing point	-16 °C (3.2 °F)
f)	Initial boiling point/range	126-127 °C (259-261 °F)
g)	Flash point	no data available
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	1.799 g/cm <sup>3</sup> at 25°C (77°F)
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

Extreme heat

### 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

No data available

#### Serious eye damage/ irritation

No data available

**Respiratory or skin sensitization**

No data available

**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**

RTECS: MJ0875000

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. Exfluor Research Corporation shall not be held liable for any damage resulting from handling or from contact with the above product.