



1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name: 1H,1H-PERFLUORO-3,6,9-TRIOXATRIDEKAN-1-OL ACRYLATE
Synonyms: Fluorinated triethylene glycol monobutyl ether acrylate
Product number: C10GACRY
CAS-No.: 871564-21-5

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

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Irritant, skin (Category 2)
Irritant, eye (Category 2)
Specific target organ toxicity – single exposure (Category 3A)

2.2 GHS Label Elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)

P264 Wash hands thoroughly after handling.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

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

none

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Formula: $C_{13}F_{19}H_5O_5$
Molecular Weight: 602 g/mol
CAS-No.: 871564-21-5

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

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.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Water spray, carbon dioxide, dry chemical powder, or polymer foam. Do not use water with a full water jet.

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. Wear protective clothing to prevent contact with skin and eyes.

5.4 Further information

No data available

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. Persistent organic pollutant.

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, sand, vermiculite, 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.

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. Handle in fume hood. Mechanical exhaust required. Avoid prolonged or repeated exposure. 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 cold. Keep container tightly closed. Store in cool, dry, and well-ventilated place. Keep away from direct sunlight or heat sources. Empty containers retain residue (powder and/or vapor) and can be dangerous. Store and handle in accordance with all current regulations and standards. 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

No data available

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

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. If used, wear NIOSH (US) or CEN (EU) approved respirator.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | | |
|----|--|--------------------|
| a) | Appearance | clear 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 | 60 °C at 1 mmHg |
| 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 | no data available |
| n) | Solubility | Insoluble in water |
| 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

| | |
|-----------|-------------|
| Inhibitor | 50 ppm MEHQ |
|-----------|-------------|

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactive toward free radical initiators.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reaction

No hazardous reactions known.

10.4 Conditions to avoid

Extreme heat

10.5 Incompatible materials
Strong oxidizing agents, Alkali metals.

10.6 Hazardous decomposition products
Releases toxic fumes of carbon oxides and hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Skin corrosion/ irritation
Vapor/ mist has irritant effect on skin and mucous membranes.
Material is expected to have a low order of toxicity from absorption through the skin.

Serious eye damage/ irritation
Vapor/ mist has irritant effect on eyes.

Respiratory or skin sensitization
Vapor/ mist has irritant effect on upper respiratory tract. No sensitizing effect known.

Germ cell mutagenicity
No data available

Carcinogenicity
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA, or ACGIH.

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.

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

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.

14. TRANSPORTATION INFORMATION

DOT (US) / IMDG / IATA

Not classified as hazardous for transport

15. REGULATORY INFORMATION

US federal information

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

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.