SECTION 1: Identification

1.1. Product identifier

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>EUROPIUM(III) THENOYLTRIFLUOROACETONATE, 95%</td>
</tr>
<tr>
<td>Product code</td>
<td>AKE297</td>
</tr>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Formula</td>
<td>C24H12EuF9O6S3</td>
</tr>
<tr>
<td>Synonyms</td>
<td>EUROPIUM TTFAC</td>
</tr>
<tr>
<td></td>
<td>EUROPIUM, TRIS[4,4,4-TRIFLUORO-1-(2-THIENYL)-1,3-BUTANEDIONATO]-</td>
</tr>
<tr>
<td></td>
<td>TRIS[4,4,4-TRIFLUORO-1-(2-THIENYL)]BUTANE-1,3-DIONATO-O,O'-EUROPIUM</td>
</tr>
<tr>
<td></td>
<td>EUROPIUM, TRIS[4,4,4-TRIFLUORO-1-(2-THIENYL)-1,3-BUTANEDIONATO-O,O']-</td>
</tr>
<tr>
<td>Chemical family</td>
<td>RARE EARTH COMPOUND</td>
</tr>
</tbody>
</table>

1.2. Recommended use of the chemical and restrictions on use

Recommended use: Chemical intermediate
For research and industrial use only

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
- Skin corrosion/irritation Category 2: H315
- Serious eye damage/eye irritation Category 2A: H319
- Specific target organ toxicity (single exposure) Category 3: H335

Full text of H statements: see section 16

2.2. Label elements

GHS-US labeling

<table>
<thead>
<tr>
<th>Hazard pictograms (GHS-US)</th>
<th>!</th>
</tr>
</thead>
</table>

Signal word (GHS-US): Warning

Hazard statements (GHS-US):
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation

Precautionary statements (GHS-US):
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P261 - Avoid breathing dust
- P264 - Wash hands thoroughly after handling
- P271 - Use only outdoors or in a well-ventilated area
- P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
- P302+P352 - If on skin: Wash with plenty of soap and water
- P332+P313 - If skin irritation occurs: Get medical advice/attention
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P337+P313 - If eye irritation persists: Get medical advice/attention
- P312 - Call a doctor if you feel unwell
- P321 - Specific treatment (see first aid instructions on this label)
- P362+P364 - Take off contaminated clothing and wash it before reuse
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed
- P405 - Store locked up
EUROPIUM(III) THENOYLTRIFLUOROACETONATE, 95%
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P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS No</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>EUROPIUM(III) THENOYLTRIFLUOROACETONATE, 95%</td>
<td>14054-87-6</td>
<td>(CAS No) 14054-87-6</td>
<td>95 - 100</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures
Not applicable

4.1. Description of first aid measures
First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water. Get 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 medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after inhalation: May cause respiratory irritation.
Symptoms/effects after skin contact: Causes skin irritation.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects after ingestion: No information available.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media
Unsuitable extinguishing media: Do not use straight streams.

5.2. Special hazards arising from the substance or mixture
Fire hazard: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters
Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.
6.3. Methods and material for containment and cleaning up

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Use only outdoors or in a well-ventilated area.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store locked up.

Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls: Provide local exhaust or general room ventilation.

Personal protective equipment: Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection: Neoprene or nitrile rubber gloves.

Eye protection: Chemical goggles. Contact lenses should not be worn.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid

Appearance: Glassy solid. Turns yellow on hydration.

Molecular mass: 818.51 g/mol

Color: Red.

Odor: No data available

Odor threshold: No data available

Refractive index: No data available

pH: No data available

Relative evaporation rate (butyl acetate=1): No data available

Melting point: 134 - 140 °C

Freezing point: No data available

Boiling point: No data available

Flash point: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Flammability (solid, gas): No data available

Vapor pressure: < 1 mm Hg @ 25°C

Relative vapor density at 20 ºC: No data available

Relative density: No data available

VOC content: < 1 %

Solubility: Insoluble in water.

Organic solvent: Soluble: toluene, methanol, THF

Log Pow: No data available

Log Kow: No data available
EUROPIUM(III) THENOYLTRIFLUOROACETONATE, 95%
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Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosion limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Material decomposes slowly in contact with air by reaction with water and carbon dioxide.

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Europium oxide fumes. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified
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 respiratory irritation.
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause respiratory irritation.
Symptoms/effects after skin contact: Causes skin irritation.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects after ingestion: No information available.
Reason for classification: Expert judgment

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Other adverse effects: This substance may be hazardous to the environment.
EUROPIUM(III) THENOYLTRIFLUOROACETONATE, 95%
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Effect on ozone layer: No additional information available
Effect on the global warming: No known effects from this product.
GWPmix comment: No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Sewage disposal recommendations: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
Not regulated for transport.
14.2. UN proper shipping name
Not applicable
14.3. Additional information
Other information: No supplementary information available.

Transport by sea
No additional information available
Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations
Europium(III) thenoyltrifluoroacetonate (14054-87-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
Europium(III) thenoyltrifluoroacetonate (14054-87-6)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
Europium(III) thenoyltrifluoroacetonate (14054-87-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
Europium(III) thenoyltrifluoroacetonate (14054-87-6)
Listed on NZIoC (New Zealand Inventory of Chemicals)

15.3. US State regulations
No additional information available

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H315</th>
<th>Causes skin irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
</tbody>
</table>
Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

HMIS III Rating:
Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given.
Flammability: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIIB).
Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.
Date of issue: 09/14/2017
Version: 1.0

SDS US (GHS HazCom 2012) - Custom
According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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