SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Physical state : Solid
Substance name : LEAD(II) TRIFLUOROACETATE, hemihydrate
Product code : PBL6470
Formula : C₄F₆O₄Pb·0.5H₂O
Synonyms : LEAD BIS(TRIFLUOROACETATE)
Chemical family : METAL COMPOUND

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

Use of the substance/mixture : Chemical intermediate
For research 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: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification
Skin Irrit. 2 H315
Eye Irrit. 2A H319
Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labelling
Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
Precautionary statements (GHS-US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection
P264 - Wash hands thoroughly after handling
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
P362 - Take off contaminated clothing and wash it before reuse
P321 - Specific treatment (see first aid instructions on this label)

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent
LEAD(II) TRIFLUOROACETATE, hemihydrate
Safety Data Sheet

Name : LEAD(II) TRIFLUOROACETATE, hemihydrate
CAS No : 4146-73-0

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
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<tbody>
<tr>
<td>Lead(II) Trifluoroacetate, hemihydrate</td>
<td>(CAS No) 4146-73-0</td>
<td>95 -</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
</tbody>
</table>

3.2. Mixture
Not applicable

SECTION 4: First aid measures

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/injuries after inhalation : May cause irritation to the respiratory tract.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes serious eye irritation.
Symptoms/injuries after ingestion : No information available.

4.3. Indication of any immediate medical attention and special treatment needed
Physician note: Diagnostic mobilization of lead with calcium EDTA may be useful in questionable cases.

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.

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.

11/03/2015  EN (English US)  SDS ID: PBL6470  2/6
LEAD(II) TRIFLUOROACETATE, hemihydrate
Safety Data Sheet

SECTION 7: Handling and storage

7.1. Precautions for safe handling
- **Precautions for safe handling**: Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.
- **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.
- **Storage area**: Store in a well-ventilated place.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
<table>
<thead>
<tr>
<th>Lead(II) Trifluoroacetate, hemihydrate (4146-73-0)</th>
<th>USA ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.05 mg/m³ as lead</td>
<td></td>
</tr>
</tbody>
</table>

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 (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
- **Physical state**: Solid
- **Appearance**: Crystals.
- **Molecular mass**: 433.22 g/mol
- **Color**: White to off-white.
- **Odor**: Acetic acid, vinegar.
- **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**: 10 - 107 °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**: No data available
- **Relative vapor density at 20 °C**: No data available
- **Relative density**: 2.83
- **Solubility**: Slightly. Soluble in water. Organic solvent: Soluble: trifluoroacetic acid, THF, acetone
- **Log Pow**: No data available
- **Log Kow**: No data available
- **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
**LEAD(II) TRIFLUOROACETATE, hemihydrate**

**Safety Data Sheet**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.2.</td>
<td>Other information</td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>SECTION 10: Stability and reactivity</strong></td>
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<td></td>
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<tr>
<td>10.1.</td>
<td>Reactivity</td>
<td>No additional information available</td>
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<td>10.2.</td>
<td>Chemical stability</td>
<td>Stable.</td>
</tr>
<tr>
<td>10.3.</td>
<td>Possibility of hazardous reactions</td>
<td>Material decomposes slowly in contact with air by reaction with water and carbon dioxide.</td>
</tr>
<tr>
<td>10.4.</td>
<td>Conditions to avoid</td>
<td>No additional information available</td>
</tr>
<tr>
<td>10.5.</td>
<td>Incompatible materials</td>
<td>No additional information available</td>
</tr>
<tr>
<td><strong>SECTION 11: Toxicological information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.1.</td>
<td>Information on toxicological effects</td>
<td>Acute toxicity: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin corrosion/irritation: Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Serious eye damage/irritation: Causes serious eye irritation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respiratory or skin sensitization: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Germ cell mutagenicity: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carcinogenicity: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reproductive toxicity: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific target organ toxicity (single exposure): Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific target organ toxicity (repeated exposure): Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aspiration hazard: Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Symptoms/injuries after inhalation: May cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Symptoms/injuries after skin contact: Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Symptoms/injuries after eye contact: Causes serious eye irritation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Symptoms/injuries after ingestion: No information available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reason for classification: Expert judgment</td>
</tr>
<tr>
<td><strong>SECTION 12: Ecological information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.1.</td>
<td>Toxicity</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.2.</td>
<td>Persistence and degradability</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.3.</td>
<td>Bioaccumulative potential</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.4.</td>
<td>Mobility in soil</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.5.</td>
<td>Other adverse effects</td>
<td>Other adverse effects: This substance may be hazardous to the environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effect on ozone layer: No additional information available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effect on the global warming: No known ecological damage caused by this product.</td>
</tr>
<tr>
<td><strong>SECTION 13: Disposal considerations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Waste disposal recommendations: Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in accordance with local/national regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ecology - waste materials: Avoid release to the environment.</td>
</tr>
</tbody>
</table>
**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**

<table>
<thead>
<tr>
<th>Lead(II) Trifluoroacetate, hemihydrate (4146-73-0)</th>
<th>CAUTION: This material is supplied for research and development purposes subject to the R&amp;D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a &quot;technically qualified individual&quot; as defined by 40 CFR 720.3(ee). The use of this material for &quot;commercial purposes&quot; as defined by 40 CFR 720.3(f) is not permitted in the United States.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA Exemption/Exclusion</td>
<td>Lead(II) Trifluoroacetate, hemihydrate (4146-73-0)</td>
</tr>
<tr>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
<td></td>
</tr>
</tbody>
</table>

**15.2. International regulations**
No additional information available

**15.3. US State regulations**

<table>
<thead>
<tr>
<th>Lead(II) Trifluoroacetate, hemihydrate (4146-73-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S. - California - Proposition 65 - Carcinogens List</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>U.S. - California - Proposition 65 - Developmental Toxicity</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</strong></td>
<td>No</td>
</tr>
</tbody>
</table>

**Lead(II) Trifluoroacetate, hemihydrate (4146-73-0)**

<table>
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<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>Non-significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION 16: Other information**

**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.

**Full text of H-phrases:**

<table>
<thead>
<tr>
<th>Eye Irrit. 2A</th>
<th>Serious eye damage/eye irritation Category 2A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
</tbody>
</table>
LEAD(II) TRIFLUOROACETATE, hemihydrate
Safety Data Sheet

HMIS III Rating
Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability : 1 Slight Hazard
Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 11/03/2015 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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