SECTION 1: Identification

1.1. Identification
Product name: ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90
Product code: AKA078
Product form: Mixture
Physical state: Liquid
Formula: C28H53AlO5
Chemical family: METAL ALCOHOLATE

1.2. Recommended use and restrictions on use
Recommended use: Chemical intermediate

1.3. Supplier
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:
- Flammable liquids Category 2: H225 Highly flammable liquid and vapor
- Serious eye damage/eye irritation Category 2A: H319 Causes serious eye irritation

2.2. GHS Label elements, including precautionary statements
GHS US labeling:
- Signal word (GHS US): Danger
- Hazard statements (GHS US): H225 - Highly flammable liquid and vapor
  H319 - Causes serious eye irritation
- Precautionary statements (GHS US):
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  - P210 - Keep away from heat, open flames, sparks. - No smoking.
  - P233 - Wear protective gloves/protective clothing/eye protection/face protection.
  - P240 - Ground/Bond container and receiving equipment.
  - P241 - Use explosion-proof electrical equipment.
  - P242 - Use only non-sparking tools.
  - P243 - Take precautionary measures against static discharge.
  - P264 - Wash hands thoroughly after handling.
  - P303+P361+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
  - P403+P235 - Keep in a cool place.
  - 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)
Not applicable
ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90
Safety Data Sheet

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Octadec-9-enyl acetoacetato-O1',O3)dipropan-2-octaoaluminium</td>
<td>(CAS-No.) 80481-35-2</td>
<td>&gt; 85</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>(CAS-No.) 67-63-0</td>
<td>&gt; 10</td>
<td>Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319 STOT SE 3, H336</td>
</tr>
</tbody>
</table>

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

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.

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 (acute and delayed)

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : May cause skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : May be harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment : Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.
### SECTION 6: Reference to other sections

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

**Additional hazards when processed**
- Handle empty containers with care because residual vapors are flammable.

**Precautions for safe handling**
- Avoid all eye and skin contact and do not breathe vapor and mist. Use only outdoors or in a well-ventilated area. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Containers and transfer lines require grounding during use. Use only non-sparking tools.

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

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

**Technical measures**
- Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.

**Storage conditions**
- Keep container tightly closed.

**Incompatible materials**
- Water.

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

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH ACGIH TWA (ppm)</td>
<td>200 ppm</td>
</tr>
<tr>
<td>ACGIH ACGIH STEL (ppm)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>OSHA OSHA PEL (TWA) (mg/m³)</td>
<td>980 mg/m³</td>
</tr>
<tr>
<td>OSHA OSHA PEL (TWA) (ppm)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>IDLH US IDLH (ppm)</td>
<td>2000 ppm (10% LEL)</td>
</tr>
<tr>
<td>NIOSH NIOSH REL (TWA) (mg/m³)</td>
<td>980 mg/m³</td>
</tr>
<tr>
<td>NIOSH NIOSH REL (TWA) (ppm)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>NIOSH NIOSH REL (STEL) (mg/m³)</td>
<td>1225 mg/m³</td>
</tr>
<tr>
<td>NIOSH NIOSH REL (STEL) (ppm)</td>
<td>500 ppm</td>
</tr>
</tbody>
</table>

#### 8.2. Appropriate engineering controls

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

#### 8.3. Individual protection measures/Personal protective equipment

**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 organic vapor (black cartridge) respirator.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

**Physical state**
- Liquid

**Appearance**
- Liquid.
**ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90**
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**Molecular mass**: 496.68 g/mol  
**Color**: Yellow-orange. Amber.  
**Odor**: Isopropanol.  
**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**: No data available  
**Freezing point**: No data available  
**Boiling point**: No data available  
**Flash point**: 21 °C  
**Auto-ignition temperature**: No data available  
**Decomposition temperature**: No data available  
**Flammability (solid, gas)**: Highly flammable liquid and vapor  
**Vapor pressure**: No data available  
**Relative vapor density at 20 °C**: No data available  
**Relative density**: 0.99  
**% Volatiles**: < 20 °C  
**Solubility**: Reacts with water.  
**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

**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 moist air or with water liberating isopropanol and aluminum hydroxide.

**10.4. Conditions to avoid**  
Heat. Open flame. Sparks.

**10.5. Incompatible materials**  
Water.

**10.6. Hazardous decomposition products**  
Organic acid vapors. Aluminum oxide fumes.

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity**  
Not classified

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1870 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>4059 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>72600 mg/m³ (Exposure time: 4 h)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1870 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>4059 mg/kg body weight</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**  
Not classified

**Serious eye damage/irritation**  
Causes serious eye irritation.

**Respiratory or skin sensitization**  
Not classified
ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90
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Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
</tr>
<tr>
<td>Aspiration hazard</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
</tr>
<tr>
<td>Symptoms/effects after ingestion</td>
</tr>
<tr>
<td>Reason for classification</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
</tbody>
</table>

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.
Effect on the ozone layer : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
UN-No.(DOT) : 1993
DOT NA no. : UN1993

14.2. UN proper shipping name
Transport document description : UN1993 Flammable liquids, n.o.s. (ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE), 3, II
Proper Shipping Name (DOT) : Flammable liquids, n.o.s. (ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE)
Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT) : II - Medium Danger
ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90
Safety Data Sheet

Hazard labels (DOT) : 3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information
Emergency Response Guide (ERG) Number : 128
Other information : No supplementary information available.

Transport by sea
DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

SECTION 15: Regulatory information

15.1. US Federal regulations
ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90 (80481-35-2)

TSCA Exemption/Exclusion
CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Isopropanol (67-63-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
EPA TSCA Regulatory Flag : T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.
SARA Section 313 - Emission Reporting : 1 % (only if manufactured by the strong acid process, no supplier notification)

(Octadec-9-enyl acetoacetato-O1',O3)dipropan-2-olatoaluminium (80481-35-2)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
Isopropanol (67-63-0)
Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification : Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations
Isopropanol (67-63-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

(Octadec-9-enyl acetoacetato-O1',O3)dipropan-2-olatoaluminium (80481-35-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
ALUMINUM 9-OCTADECENYLACETOACETATE DIISOPROPOXIDE, tech-90
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Isopropanol (67-63-0)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSC (Mexican National Inventory of Chemical Substances)
Listed on PI CCS (Philippines Inventory of Chemicals and Chemical Substances)

(Octadec-9-yl acetooacetoato-O1,O3)diisopropan-2-olatoaluminium (80481-35-2)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm
Isopropanol (67-63-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Full text of H-phrases:

| H225 | Highly flammable liquid and vapor |
| H302 | Harmful if swallowed |
| H319 | Causes serious eye irritation |
| H336 | May cause drowsiness or dizziness |

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.

Hazard Rating
Health: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 °F and boiling points above 100 °F, as well as liquids with flash points between 73 °F and 100 °F. (Classes IB & IC)
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: 06/03/2015 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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