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

1.1. Product identifier
Product form: Substance
Physical state: Liquid
Substance name: ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE
Product code: AKA050
Formula: C_{12}H_{23}AlO_{5}
Synonyms: ALUMINUM ISOPROPOXIDE CHELATE; DIISOPROPYL ALUMINUM ETHYL ACETOACETATE; (ETHYL 3-OXOBUTYRATO-01',O3)BIS(PROPAN-2-OLATO)ALUMINIUM
Chemical family: METAL ALCOHOLATE

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
Use of the substance/mixture: Chemical intermediate

1.2.2. Uses advised against
No additional information available

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

GELEST INC.
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@geleste.de - www.geleste.de

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
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flammable liquids, Category 3 H226
Serious eye damage/eye irritation, Category 2 H319

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP): GHS02 GHS07

Signal word (CLP): Warning
Hazard statements (CLP): H226 - Flammable liquid and vapour.
H319 - Causes serious eye irritation.
Precautionary statements (CLP): P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P264 - Wash hands thoroughly after handling.
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.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

| Substance type | : Mono-constituent |
| Name | : ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE |
| CAS-No. | : 14782-75-3 |
| EC-No. | : 238-851-7 |

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum disopropoxide ethylacetoacetate</td>
<td>(CAS-No.) 14782-75-3 (EC-No.) 238-851-7</td>
<td>95 - 100</td>
<td>Flam. Liq. 3, H226 Eye Irrit. 2, H319</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
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 person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell. |
| First-aid measures after skin contact | : Wash with plenty of 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 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 | : 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 | : Flammable liquid and vapour. 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 all eye and skin contact and do not breathe vapour and mist. |
## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### General measures
Eliminate ignition sources. Use special care to avoid static electric charges.

#### 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 liquid 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
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.

### 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

- **Additional hazards when processed**: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- **Precautions for safe handling**: Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. Use only non-sparking tools.
- **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

- **Technical measures**: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
- **Storage conditions**: Keep container tightly closed. Keep in a cool place.
- **Incompatible materials**: Water.
- **Storage area**: Store in a well-ventilated place. Store away from heat.

### 7.3. Specific end use(s)

No additional information available

## 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 organic vapor (black cartridge) respirator.

**SECTION 9: Physical and chemical properties**

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid. Viscous.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>274.49 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Pale yellow.</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No additional information available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyrate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>&lt; 20 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>50 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.05</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&gt; 25 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts with water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>1000 - 1200 cSt @ 20°C</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**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 moisture, 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**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
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 : No information available.
Reason for classification : Expert judgment

SECTION 12: Ecological information
12.1. Toxicity
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

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. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

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
In accordance with ADR / RID / IMDG / IATA / ADN

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN-No. (IMDG)</th>
<th>UN-No. (IATA)</th>
<th>UN-No. (ADN)</th>
<th>UN-No. (RID)</th>
</tr>
</thead>
</table>

14.2. UN proper shipping name
Proper Shipping Name (ADR) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IATA) : Flammable liquid, n.o.s.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (RID) : FLAMMABLE LIQUID, N.O.S.
Transport document description (ADR) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE), 3, III, (D/E)
Transport document description (IMDG) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE), 3, III
Transport document description (IATA) : UN 1993 Flammable liquid, n.o.s. (ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE), 3, III
### ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE

Safety Data Sheet

| Transport document description (ADN) | UN 1993 FLAMMABLE LIQUID, N.O.S. (ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE), 3, III |
| Transport document description (RID) | UN 1993 FLAMMABLE LIQUID, N.O.S. (ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE), 3, III |

#### 14.3. Transport hazard class(es)

**ADR**

Transport hazard class(es) (ADR) : 3

Danger labels (ADR) : 3

![ADR Fire label]

**IMDG**

Transport hazard class(es) (IMDG) : 3

Danger labels (IMDG) : 3

![IMDG Fire label]

**IATA**

Transport hazard class(es) (IATA) : 3

Hazard labels (IATA) : 3

![IATA Fire label]

**ADN**

Transport hazard class(es) (ADN) : 3

Danger labels (ADN) : 3

![ADN Fire label]

**RID**

Transport hazard class(es) (RID) : 3

Danger labels (RID) : 3

![RID Fire label]

#### 14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III
14.5. Environmental hazards

Dangerous for the environment: No
Marine pollutant: No
Other information: No supplementary information available

14.6. Special precautions for user

- Overland transport
  Classification code (ADR): F1
  Special provisions (ADR): 274, 601, 640E
  Limited quantities (ADR): 5L
  Excepted quantities (ADR): E1
  Packing instructions (ADR): P001, IBC03, LP01, R001
  Mixed packing provisions (ADR): MP19
  Portable tank and bulk container instructions (ADR): T4
  Portable tank and bulk container special provisions (ADR): TP1, TP29
  Tank code (ADR): LGBF
  Vehicle for tank carriage: FL
  Transport category (ADR): 3
  Special provisions for carriage - Packages (ADR): V12
  Special provisions for carriage - Operation (ADR): S2
  Hazard identification number (Kemler No.): 30
  Orange plates: 30
  Tunnel restriction code (ADR): D/E

- Transport by sea
  Special provisions (IMDG): 223, 274, 955
  Limited quantities (IMDG): 5 L
  Excepted quantities (IMDG): E1
  Packing instructions (IMDG): P001, LP01
  IBC packing instructions (IMDG): IBC03
  Tank instructions (IMDG): T4
  Tank special provisions (IMDG): TP1, TP29
  EmS-No. (Fire): F-E
  EmS-No. (Spillage): S-E
  Stowage category (IMDG): A

- Air transport
  PCA Excepted quantities (IATA): E1
  PCA Limited quantities (IATA): Y344
  PCA limited quantity max net quantity (IATA): 10L
  PCA packing instructions (IATA): 355
  PCA max net quantity (IATA): 60L
  CAO packing instructions (IATA): 366
  CAO max net quantity (IATA): 220L
  Special provisions (IATA): A3
  ERG code (IATA): 3L

- Inland waterway transport
  Classification code (ADN): F1
  Special provisions (ADN): 274, 601, 640E
  Limited quantities (ADN): 5 L
  Excepted quantities (ADN): E1
### ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE
#### Safety Data Sheet

<table>
<thead>
<tr>
<th>Carriage permitted (ADN)</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment required (ADN)</td>
<td>PP, EX, A</td>
</tr>
<tr>
<td>Ventilation (ADN)</td>
<td>VE01</td>
</tr>
<tr>
<td>Number of blue cones/lights (ADN)</td>
<td>0</td>
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</tbody>
</table>

**- Rail transport**

<table>
<thead>
<tr>
<th>Classification code (RID)</th>
<th>F1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special provisions (RID)</td>
<td>274, 601, 640E</td>
</tr>
<tr>
<td>Limited quantities (RID)</td>
<td>5L</td>
</tr>
<tr>
<td>Excepted quantities (RID)</td>
<td>E1</td>
</tr>
<tr>
<td>Packing instructions (RID)</td>
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<tr>
<td>Mixed packing provisions (RID)</td>
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<td>Portable tank and bulk container instructions (RID)</td>
<td>T4</td>
</tr>
<tr>
<td>Portable tank and bulk container special provisions (RID)</td>
<td>TP1, TP29</td>
</tr>
<tr>
<td>Tank codes for RID tanks (RID)</td>
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<tr>
<td>Transport category (RID)</td>
<td>3</td>
</tr>
<tr>
<td>Special provisions for carriage – Packages (RID)</td>
<td>W12</td>
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<tr>
<td>Colis express (express parcels) (RID)</td>
<td>CE4</td>
</tr>
<tr>
<td>Hazard identification number (RID)</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

### SECTION 15: Regulatory information

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**15.1.1. EU-Regulations**

No REACH Annex XVII restrictions
ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE is not on the REACH Candidate List
ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE is not on the REACH Annex XIV List
ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

### 15.1.2. National regulations

**Germany**

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

**Netherlands**

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

**Denmark**

Class for fire hazard : Class II-1
Store unit : 5 liter
Classification remarks : R10 <H226;H319>: Emergency management guidelines for the storage of flammable liquids must be followed

### 15.2. Chemical safety assessment

No additional information available
ALUMINUM DIISOPROPOXIDE ETHYLACETOACETATE
Safety Data Sheet

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; GHS: The Globally Harmonized System of Classification and Labelling; APP: Assigned Protection Factor

Other information: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2 |
| Flam. Liq. 3 | Flammable liquids, Category 3 |
| H226 | Flammable liquid and vapour. |
| H319 | Causes serious eye irritation. |

SDS EU (REACH Annex II) - Custom

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