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

1.1. Product identifier

- **Product form**: Substance
- **Physical state**: Solid
- **Substance name**: ALUMINUM n-BUTOXIDE, tech-95
- **Product code**: AKAO10
- **Formula**: C12H27AlO3
- **Synonyms**: ALUMINUM TRI-BUTOXIDE; ALUMINIUM TRIBUTANOLATE; ALUMINUM TRIBUTYLATE
- **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@gelestde.com - www.gelestde.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

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

- Serious eye damage/eye irritation, Category 2 : H319
- Full text of H statements : see section 16

**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)**: GHS07
- **Signal word (CLP)**: Warning
- **Hazard statements (CLP)**: H319 - Causes serious eye irritation.
- **Precautionary statements (CLP)**: P280 - Wear protective gloves/protective clothing/eye protection/face protection. 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.
ALUMINUM n-BUTOXIDE, tech-95
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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 n-BUTOXIDE, tech-95
CAS-No.: 3085-30-1
EC-No.: 221-394-2

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC No. 1272/2008 [CLP])</th>
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<td>Aluminum n-butoxide</td>
<td>(CAS-No.) 3085-30-1</td>
<td>95 - 100</td>
<td>Eye Irrit. 2, H319</td>
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<td>(EC-No.) 221-394-2</td>
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<td></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. If you feel unwell, seek medical advice.

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: Avoid water spray as n-butanol will be generated.

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.
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.
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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. Do not breathe dust. Avoid dust formation. Do not allow dust to accumulate in work areas. 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.
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 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: Solid
Molecular mass: 246.32 g/mol
Colour: Off-white
Odour: Slight odor of n-butanol
Odour threshold: No data available
Refractive index: No additional information available
## ALUMINUM n-BUTOXIDE, tech-95

### Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
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</tr>
<tr>
<td>Melting point</td>
<td>102 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>242 °C @ 0.7 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 65 °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>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.1 mm Hg</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>&lt; 1</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>No data available</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 t-butanol and aluminum hydroxide.

#### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

#### 10.5. Incompatible materials

Water.

#### 10.6. Hazardous decomposition products


### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

- **Acute toxicity**: Not classified
- **Skin corrosion/irritation**: Not classified
- **Serious eye damage/irritation**: Causes serious eye irritation.
- **Respiratory or skin sensitisation**: Not classified
- **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

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Print date: 09/04/2019

EN (English)

SDS ID: AKA010

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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 solid materials or residues at a licensed site.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

ADN
Transport hazard class(es) (ADN) : Not applicable

RID
Transport hazard class(es) (RID) : Not applicable

14.4. Packing group
Packaging group (ADR) : Not applicable
ALUMINUM n-BUTOXIDE, tech-95
Safety Data Sheet

Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

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
  Not applicable
- Transport by sea
  Not applicable
- Air transport
  Not applicable
- Inland waterway transport
  Not applicable
- Rail transport
  Not applicable

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 n-BUTOXIDE, tech-95 is not on the REACH Candidate List
ALUMINUM n-BUTOXIDE, tech-95 is not on the REACH Annex XIV List
ALUMINUM n-BUTOXIDE, tech-95 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.

% Volatiles : > 25 %

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-list van kankerverwekkende stoffen : The substance is not listed
SZW-list van mutagene stoffen : The substance is not listed
KIET-limitatieve lijst van voor de voorplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voorplanting giftige stoffen – Vruchtbareheid : The substance is not listed
NIET-limitatieve lijst van voor de voorplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark
Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

15.2.  Chemical safety assessment
No additional information available
## SECTION 16: Other information

### Abbreviations and acronyms

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

Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>H319</td>
<td>Serious eye damage/eye irritation, Category 2</td>
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<tr>
<td></td>
<td>Causes serious eye irritation.</td>
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</tbody>
</table>

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**SDS EU (REACH Annex II) - Custom**

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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