

ALUMINUM ISOPROPOXIDE

Safety Data Sheet AKA070

Date of issue: 21/08/2015

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Version: 2.0

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 ISOPROPOXIDE
Product code	: AKA070
Formula	: C ₉ H ₂₁ AlO ₃
Synonyms	: ALUMINUM ISOPROPYLATE; ALUMINIUM TRIISOPROPANOLATE
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]**

Flammable solids, Category 1 H228

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) :



GHS02

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H228 - Flammable solid.

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.

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P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical equipment.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : ALUMINUM ISOPROPOXIDE
CAS-No. : 555-31-7
EC-No. : 209-090-8

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aluminum isopropoxide	(CAS-No.) 555-31-7 (EC-No.) 209-090-8 (EC Index-No.) 603-042-00-3	95 - 100	Flam. Sol. 1, H228

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 : May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Water.

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

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

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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

Additional hazards when processed : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Avoid contact with water. Do not allow dust to accumulate in work areas. Ground/bond container and receiving equipment. 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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. 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.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Aluminum isopropoxide (555-31-7)

Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ total dust
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8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

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

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 204.25 g/mol
Colour	: White.
Odour	: characteristic. Isopropanol.
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 118.5 °C
Freezing point	: No data available
Boiling point	: 135 - 138 °C @10 mm Hg
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 1 mm Hg @ 25°C
Relative vapour density at 20 °C	: > 1
Relative density	: 1.035
Solubility	: Reacts with water. Organic solvent:Soluble: hot isopropanol, toluene
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
Oxidising properties	: No data available
Explosive 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 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

Aluminum oxide fumes. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Aluminum isopropoxide (555-31-7)

LD50 oral rat	11300 mg/kg
ATE CLP (oral)	11300 mg/kg bodyweight

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

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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	: May be harmful if swallowed.
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

14.1. UN number

UN-No. (ADR)	: 3181
UN-No. (IMDG)	: 3181
UN-No. (IATA)	: 3181
UN-No. (ADN)	: 3181
UN-No. (RID)	: 3181

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
Proper Shipping Name (IMDG)	: METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
Proper Shipping Name (IATA)	: Metal salts of organic compounds, flammable, n.o.s.
Proper Shipping Name (ADN)	: METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
Proper Shipping Name (RID)	: METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
Transport document description (ADR)	: UN 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (ALUMINUM ISOPROPOXIDE), 4.1, II, (E)
Transport document description (IMDG)	: UN 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (ALUMINUM ISOPROPOXIDE), 4.1, II
Transport document description (IATA)	: UN 3181 Metal salts of organic compounds, flammable, n.o.s. (ALUMINUM ISOPROPOXIDE), 4.1, II

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Transport document description (ADN)	: UN 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (ALUMINUM ISOPROPOXIDE), 4.1, II
Transport document description (RID)	: UN 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (ALUMINUM ISOPROPOXIDE), 4.1, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 4.1
Danger labels (ADR)	: 4.1



IMDG

Transport hazard class(es) (IMDG)	: 4.1
Danger labels (IMDG)	: 4.1



IATA

Transport hazard class(es) (IATA)	: 4.1
Hazard labels (IATA)	: 4.1



ADN

Transport hazard class(es) (ADN)	: 4.1
Danger labels (ADN)	: 4.1



RID

Transport hazard class(es) (RID)	: 4.1
Danger labels (RID)	: 4.1



14.4. Packing group

Packing group (ADR)	: II
Packing group (IMDG)	: II
Packing group (IATA)	: II
Packing group (ADN)	: II
Packing group (RID)	: II

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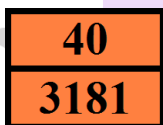
14.5. Environmental hazards

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)	: F3
Special provisions (ADR)	: 274
Limited quantities (ADR)	: 1kg
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P002, IBC08
Special packing provisions (ADR)	: B3
Mixed packing provisions (ADR)	: MP11
Portable tank and bulk container instructions (ADR)	: T3
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Packages (ADR)	: V11
Hazard identification number (Kemler No.)	: 40
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 1Z

- Transport by sea

Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 1 kg
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P002
Special packing provisions (IMDG)	: PP31
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B2, B4
Tank instructions (IMDG)	: T3
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-I
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Decomposes in water. Liable to spontaneous heating. Irritating to skin and mucous membranes.

- Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y441
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 445
PCA max net quantity (IATA)	: 15kg
CAO packing instructions (IATA)	: 448
CAO max net quantity (IATA)	: 50kg
Special provisions (IATA)	: A3
ERG code (IATA)	: 3L

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- Inland waterway transport

Classification code (ADN)	: F3
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 1 kg
Excepted quantities (ADN)	: E2
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 1

- Rail transport

Classification code (RID)	: F3
Special provisions (RID)	: 274
Limited quantities (RID)	: 1kg
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P002, IBC08
Special packing provisions (RID)	: B4
Mixed packing provisions (RID)	: MP11
Portable tank and bulk container instructions (RID)	: T3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAN
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W1
Colis express (express parcels) (RID)	: CE10
Hazard identification number (RID)	: 40

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 ISOPROPOXIDE is not on the REACH Candidate List

ALUMINUM ISOPROPOXIDE is not on the REACH Annex XIV List

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

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

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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

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Flam. Sol. 1	Flammable solids, Category 1
H228	Flammable solid.

SDS EU (REACH Annex II) - Custom

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