# ALUMINUM ISOPROPOXIDE

Safety Data Sheet AKA070

Date of issue: 08/21/2015 Revision date: 01/25/2016 Version: 2.0

## SECTION 1: Identification

### 1.1. Identification

| | | |
|---|---|---|
| Product name | : | ALUMINUM ISOPROPOXIDE |
| Product code | : | AKA070 |
| Product form | : | Substance |
| Physical state | : | Solid |
| Formula | : | C9H21AlO3 |
| Synonyms | : | ALUMINUM ISOPROPYLATE; ALUMINIUM TRIISOPROPANOLATE |
| 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 solids Category 1 | H228 | Flammable solid |
| Serious eye damage/eye irritation Category 2A | H319 | Causes serious eye irritation |

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS-US labeling**

Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H228 - Flammable solid
H319 - Causes serious eye irritation

Precautionary statements (GHS-US) :
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. heat, open flames, sparks
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical 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.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.

### 2.3. Hazards not otherwise classified (HNOC)

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

| | | |
|---|---|---|
| Substance type | : | Mono-constituent |

Name : ALUMINUM ISOPROPOXIDE

CAS-No. : 555-31-7

| Name | Product identifier | % | GHS-US classification |
|---|---|---|---|
| Aluminum isopropoxide | (CAS-No.) 555-31-7 | 95 - 100 | Flam. Sol. 1, H228<br>Eye Irrit. 2A, H319 |

Full text of hazard classes and 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 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 (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

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

Unsuitable extinguishing media : Water.

### 5.2. Specific hazards arising from the chemical

Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

### 5.3. Special protective equipment and precautions for fire-fighters

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.

#### 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/sparks/open flames/hot surfaces. - 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. |

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Aluminum isopropoxide (555-31-7)** | | |
|---|---|---|
| ACGIH | ACGIH TWA (mg/m³) | 10 mg/m³ total dust |

### 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:**

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.

## 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 |
| Color | : | White. |
| Odor | : | Characteristic. 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 | : | 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 |

| | | |
|---|---|---|
| Vapor pressure | : | < 1 mm Hg @ 25°C |
| Relative vapor density at 20 °C | : | > 1 |
| Relative density | : | 1.035 |
| Solubility | : | Reacts with water.<br>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 |
| 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 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 US (oral) | 11300 mg/kg body weight |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Not classified |
| Serious eye damage/irritation | : | Causes serious eye irritation. |
| Respiratory or skin sensitization | : | Not classified |
| Germ cell mutagenicity | : | Not classified |
| Carcinogenicity | : | Not classified |
| Reproductive toxicity | : | Not classified |
| Specific target organ toxicity – single exposure | : | Not classified |
| Specific target organ toxicity – 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

No additional information available

### 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. Other adverse effects

Effect on the ozone layer : No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal 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

UN-No.(DOT) : 3181

DOT NA no. UN3181

### 14.2. UN proper shipping name

Transport document description : UN3181 Metal salts of organic compounds, flammable, n.o.s. (ALUMINUM ISOPROPOXIDE), 4.1, II

Proper Shipping Name (DOT) : Metal salts of organic compounds, flammable, n.o.s. (ALUMINUM ISOPROPOXIDE)

Class (DOT) : 4.1 - Class 4.1 - Flammable Solid 49 CFR 173.124

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 4.1 - Flammable solid


DOT Packaging Non Bulk (49 CFR 173.xxx) : 212

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Packaging Exceptions (49 CFR 173.xxx) : 151

DOT Symbols : G - Identifies PSN requiring a technical name

### 14.3. Additional information

Emergency Response Guide (ERG) Number : 133

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.

DOT Vessel Stowage Other : 40 - Stow ‘‘clear of living quarters’’

**Air transport**

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| Aluminum isopropoxide (555-31-7) |
|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |

### 15.2. International regulations

#### CANADA

| Aluminum isopropoxide (555-31-7) | |
|---|---|
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |

#### EU-Regulations

| Aluminum isopropoxide (555-31-7) |
|---|
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |

#### National regulations

| Aluminum isopropoxide (555-31-7) |
|---|
| Listed on the AICS (Australian Inventory of Chemical Substances)<br>Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)<br>Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory<br>Listed on the Korean ECL (Existing Chemicals List)<br>Listed on NZIoC (New Zealand Inventory of Chemicals)<br>Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)<br>Listed on INSQ (Mexican National Inventory of Chemical Substances) |

### 15.3. US State regulations

No additional information available

## SECTION 16: Other information

Full text of H-phrases::

| | |
|---|---|
| H228 | Flammable solid |
| H319 | Causes serious eye irritation |

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.: Chemcial 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 : 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

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: 08/21/2015 Revision date: 01/25/2016 Version: 2.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations