

Material Safety Data Sheet

Aluminum isopropoxide

ACC# 27547

Section 1 - Chemical Product and Company Identification

MSDS Name: Aluminum isopropoxide

Catalog Numbers: AC205170030

Synonyms: Aluminum triisopropoxide; AIP.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|----------|-----------------------|---------|---------------|
| 555-31-7 | Aluminum isopropoxide | >98 | 209-090-8 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white solid.

Danger! Flammable solid. May cause eye, skin, and respiratory tract irritation. Moisture sensitive.

Target Organs: Central nervous system.

Potential Health Effects

Eye: May cause eye irritation. The toxicological properties of this material have not been fully investigated.

Skin: May cause skin irritation. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Hydrolyzes in the presence of water and body fluids to isopropanol, which can cause headache, nausea, narcosis, and mental depression.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. Inhalation of dusts cause severe irritation of the upper respiratory tract, gastrointestinal disturbances, albuminuria, gradual loss of weight, and increasing weakness.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse. If water-reactive products are embedded in the skin, no water should be applied. The embedded products should be covered with a light oil.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Water Reactive. Material will react with water and may release a flammable and/or toxic gas. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable solid. May ignite or explode on contact with steam or moist air. May re-ignite after fire is extinguished.

Extinguishing Media: Use carbon dioxide or dry chemical. DO NOT USE WATER! Do NOT get water inside containers. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Do not expose spill to water. Do not get water inside containers. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not allow contact with water. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|-----------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------|
| Aluminum isopropoxide | 2 mg/m3 TWA (as Al) (listed under Aluminum, soluble salts). | 2 mg/m3 TWA (as Al) (listed under Aluminum, soluble salts). | none listed |

OSHA Vacated PELs: Aluminum isopropoxide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: white

Odor: alcohol-like

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 135 deg C @ 10 mm Hg

Freezing/Melting Point: 119-142 deg C

Decomposition Temperature: Not available.

Solubility: Decomposes in water.

Specific Gravity/Density: 1.035

Molecular Formula: AlC₉H₂₁O₃

Molecular Weight: 204.25

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Isopropanol is susceptible to autoxidation and therefore should be classified as peroxidizable. Reacts with water.

Conditions to Avoid: Ignition sources, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Water.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aluminum oxide, isopropanol.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 555-31-7: BD0975000

LD50/LC50:

CAS# 555-31-7:

Oral, rat: LD50 = 11300 mg/kg;

Carcinogenicity:

CAS# 555-31-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: In rats exposed to isopropanol by inhalation, acute neurotoxicity was noted at 1 and 6 hours at 5000 ppm, but only minimal effects were seen at 1500 ppm and the animals recovered within 5 hours. No toxicity was noted at 500 ppm.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

| | US DOT | Canada TDG |
|-----------------------|------------------------------------------|------------------------------------------------------------------|
| Shipping Name: | Metal Salts Of Organic Compounds, Flamma | Metal Salts Of Organic Compounds, Flamma (ALUMINUM ISOPROPOXIDE) |
| Hazard Class: | 4.1 | 4.1 |
| UN Number: | UN3181 | UN3181 |
| Packing Group: | II | II |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 555-31-7 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 555-31-7 can be found on the following state right to know lists: California, (listed as Aluminum, soluble salts), Pennsylvania, (listed as Aluminum, soluble salts), Minnesota, (listed as Aluminum, soluble salts).

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

F

Risk Phrases:

R 11 Highly flammable.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 8 Keep container dry.

WGK (Water Danger/Protection)

CAS# 555-31-7: 1

Canada - DSL/NDSL

CAS# 555-31-7 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B4.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 555-31-7 (listed as Aluminum, soluble salts) is listed on the Canadian Ingredient Disclosure List.

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|--------------------------------------------|
| Section 16 - Additional Information |
|--------------------------------------------|

MSDS Creation Date: 12/04/1998

Revision #6 Date: 8/17/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.