

Material Safety Data Sheet

| HAZARD WARNINGS | RISK PHRASES | PROTECTIVE CLOTHING |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|   | Flammable material; avoid heat and sources of ignition. Corrosive to eyes and skin on contact. Air, light and moisture sensitive material. Store under nitrogen. |  |

Section I. Chemical Product and Company Identification

| | | | |
|------------------|------------------------------|---------------------------------|-------------------------------------------------------------------------------------------|
| Chemical Name | Aluminum sec-Butoxide | | |
| Catalog Number | A0244 | Supplier | TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616 |
| Synonym | Aluminum sec-butyrate | | |
| Chemical Formula | $Al[OCH(CH_3)CH_2CH_3]_3$ | | |
| CAS Number | 2269-22-9 | In case of Emergency Call | Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International) |

Section II. Composition and Information on Ingredients

| Chemical Name | CAS Number | Percent (%) | TLV/PEL | Toxicology Data |
|-----------------------|------------|-------------|----------------|-----------------|
| Aluminum sec-Butoxide | 2269-22-9 | 98% (T) | Not available. | Not available. |

Section III. Hazards Identification

| | |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute Health Effects | Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
| Chronic Health Effects | CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. |

Section IV. First Aid Measures

| | |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye Contact | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. |
| Skin Contact | In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. |
| Inhalation | If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve. |
| Ingestion | INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material. |

Section V. Fire and Explosion Data

| | | | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|
| Flammability | Flammable. | Auto-Ignition | 405°C (761 °F) |
| Flash Points | 26°C (78.8 °F). | Flammable Limits | Not available. |
| Combustion Products | These products are toxic carbon oxides (CO, CO ₂). Some metallic oxides. | | |
| Fire Hazards | Reactive with strong oxidizers. Vapors may travel to source of ignition and flash back. Closed containers may explode from heat of a fire. Highly flammable in presence of open flames and sparks, of heat. | | |
| Explosion Hazards | Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. | | |

Continued on Next Page

Emergency phone number (800) 424-9300

Fire Fighting Media
and Instructions

Flammable liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release MeasuresSpill Cleanup
Instructions

Flammable liquid. Corrosive liquid. Air, light and moisture sensitive material. Store material under nitrogen. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and StorageHandling and Storage
Information

FLAMMABLE. CORROSIVE. AIR, LIGHT AND MOISTURE SENSITIVE. STORE UNDER NITROGEN. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/vapor/spray. Never add water to this product. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively.
 Always store away from incompatible compounds such as oxidizing agents. Reactive with strong oxidizers; may be ignited by heat, sparks or flames. Vapors may travel to source of ignition and flash back. Closed containers may explode from heat of a fire. Empty containers may pose a fire risk. Evaporate residue under a fume hood if possible. Ground all equipment containing material. Handle with caution and minimize exposure. Keep away from heat and sources of ignition. Tightly seal container and store in a cool, dry place. Use only non-sparking hand tool when handling this product.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection

Face shield. Lab coat. Vapor respirator. Boots. Gloves. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



Exposure Limits

Not available.

Section IX. Physical and Chemical Properties

| | | | |
|-----------------------|-------------------------------------|-----------------------|----------------|
| Physical state @ 20°C | Viscous colorless to yellow liquid. | Solubility | Not available. |
| Specific Gravity | 0.96 | | |
| Molecular Weight | 246.32 | Partition Coefficient | Not available. |
| Boiling Point | Not available. | Vapor Pressure | Not available. |
| Melting Point | Not available. | Vapor Density | Not available. |
| Refractive Index | Not available. | Volatility | Not available. |
| Critical Temperature | Not available. | Odor | Not available. |
| Viscosity | Not available. | Taste | Not available. |

Section X. Stability and Reactivity Data

| | |
|---------------------------|-----------------------------------------------------------------------------------------------|
| Stability | This material is stable if stored under proper conditions. (See Section VII for instructions) |
| Conditions of Instability | Avoid excessive heat and light. |
| Incompatibilities | Reactive with strong oxidizing agents. |

Section XI. Toxicological Information

| | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RTECS Number | Not available. |
| Routes of Exposure | Eye Contact. Ingestion. inhalation. Skin contact. |
| Toxicity Data | Not available. |
| Chronic Toxic Effects | <p>CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY: Not available.</p> <p>Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.</p> |

| | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute Toxic Effects | Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Section XII. Ecological Information

| | |
|--------------------|----------------|
| Ecotoxicity | Not available. |
| Environmental Fate | Not available. |

Section XIII. Disposal Considerations

| | |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waste Disposal | Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance. |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Section XIV. Transport Information

| | |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOT Classification | DOT CLASS 3: Flammable liquid. DOT CLASS 8: Corrosive material. |
| PIN Number | UN2924 |
| Proper Shipping Name | Flammable liquids, corrosive, n.o.s. |
| Packing Group (PG) | III |
| DOT Pictograms |   |

Section XV. Other Regulatory Information and Pictograms

| | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------|
| TSCA Chemical Inventory (EPA) | This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list. |
| WHMIS Classification (Canada) | WHMIS CLASS B-2: Flammable liquid with a flash point lower than 35°C (100°F). CLASS E: Corrosive liquid. |
| EINECS Number (EEC) | 218-871-2 |
| EEC Risk Statements | R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R34- Causes burns. |
| Japanese Regulatory Data | Not available. |

Section XVI. Other Information

Version 1.0
Validated on 8/31/2000.
Printed 2/22/2011.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.