

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (5N) 99.999% Aluminum-tri-sec-butoxide

**Product Code:** AL-TSBUT-05

**CAS Number:** 2269-22-9

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

Hazards not otherwise classified No data available

GHS label elements, including precautionary statements



Hazard pictograms

GHS02 GHS07

Signal word Warning

Hazard statements

H226 Flammable liquid and vapor.

H302+H312 Harmful if swallowed or in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B2 - Flammable liquid

D1B - Toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

2

3

1

Health (acute effects) = 2

Flammability = 3

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS No. / Substance Name:

2269-22-9 Aluminum sec-butoxide

Identification number(s):

EC number: 218-871-2

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## SECTION 4. FIRST AID MEASURES

Description of first aid measures

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed:

No data available

Indication of any immediate medical attention and special treatment needed:

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Metal oxide fume

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow material to be released to the environment without official permits.

Methods and materials for containment and cleanup:

Keep away from ignition sources.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to section 13.

Prevention of secondary hazards: Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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## **SECTION 7. HANDLING AND STORAGE**

Handling

Precautions for safe handling

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.  
Keep ignition sources away.  
Conditions for safe storage, including any incompatibilities  
Requirements to be met by storerooms and receptacles: No special requirements.  
Information about storage in one common storage facility:  
Store away from oxidizing agents.  
Store away from water/moisture.  
Further information about storage conditions:  
Store under dry inert gas.  
This product is moisture sensitive.  
Keep container tightly sealed.  
Store in cool, dry conditions in well-sealed containers.  
Protect from humidity and water.  
Specific end use(s) No data available

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.  
Control parameters  
Components with limit values that require monitoring at the workplace:  
2269-22-9 Aluminum sec-butoxide (100.0%)  
PEL (USA) Long-term value: 15\*; 15\*\* mg/m<sup>3</sup>  
\*Total dust; \*\* Respirable fraction  
REL (USA) Long-term value: 10\* 5\*\* mg/m<sup>3</sup>  
\*Total dust \*\*Respirable fraction  
TLV (USA) Long-term value: 1\* mg/m<sup>3</sup>  
as Al; \*as respirable fraction  
Additional information: No data  
Exposure controls  
Personal protective equipment  
Follow typical protective and hygienic practices for handling chemicals.  
Keep away from foodstuffs, beverages and feed.  
Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  
Breathing equipment: Use suitable respirator when high concentrations are present.  
Protection of hands:  
Impervious gloves  
Inspect gloves prior to use.  
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.  
Penetration time of glove material (in minutes) No data available  
Eye protection: Safety glasses  
Body protection: Protective work clothing.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Viscous liquid

Color: Yellow tint

Odor: Alcohol-like

Odor threshold: No data available.

pH: No data available.

Melting point/Melting range: No data available

Boiling point/Boiling range: 200-206 °C (392-403 °F) (30mm Hg)

Sublimation temperature / start: No data available

Flash point: 27 °C (81 °F)

Flammability (solid, gas) No data available.

Ignition temperature: 406 °C (763 °F)

Decomposition temperature: No data available

Autoignition: No data available.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

Explosion limits:

Lower: 1.7 Vol %

Upper: 9.8 Vol %

Vapor pressure: No data available

Density at 20 °C (68 °F): 0.9671 g/cm<sup>3</sup> (8.07 lbs/gal)

Relative density No data available.

Vapor density No data available.

Evaporation rate No data available.

Solubility in / Miscibility with

Water: Hydrolyzes

Partition coefficient (n-octanol/water): No data available.

Viscosity:

dynamic at 20 °C (68 °F): 1800 mPas

Kinematic: No data available.

Other information No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity No data available

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known

Conditions to avoid No data available

Incompatible materials:

Oxidizing agents

Water/moisture

Hazardous decomposition products:

Carbon monoxide and carbon dioxide

Metal oxide fume

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

Harmful in contact with skin.

Harmful if swallowed.

Danger through skin absorption.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Causes skin irritation.

Eye irritation or corrosion: Causes serious eye irritation.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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## SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No data available

Persistence and degradability No data available

Bioaccumulative potential No data available

Mobility in soil No data available

Additional ecological information:

Do not allow material to be released to the environment without official permits.

Do not allow undiluted product or large quantities to reach groundwater, water courses, or sewage systems.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

Other adverse effects No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation Consult official regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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## SECTION 14. TRANSPORT INFORMATION

UN-Number

DOT, IMDG, IATA UN1992

UN proper shipping name  
DOT Flammable liquids, toxic, n.o.s. (Aluminum sec-butoxide)  
IMDG, IATA FLAMMABLE LIQUID, TOXIC, N.O.S. (Aluminum sec-butoxide)  
Transport hazard class(es)  
DOT  
Class 3 Flammable liquids.  
Label 3+6.1  
Class 3 (FT1) Flammable liquids  
Label 3+6.1  
IMDG, IATA  
Class 3 Flammable liquids.  
Label 3+6.1  
Packing group  
DOT, IMDG, IATA III  
Environmental hazards: N/A  
Special precautions for user Warning: Flammable liquids  
EMS Number: F-E,S-D  
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A  
Transport/Additional information:  
DOT  
Marine Pollutant (DOT): No  
UN "Model Regulation": UN1992, Flammable liquids, toxic, n.o.s. (Aluminum sec-butoxide), 3 (6.1), III

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## SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture  
GHS label elements, including precautionary statements

Hazard pictograms

GHS02 GHS07

Signal word Warning

Hazard statements

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P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings) Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.  
Prop 65 - Developmental toxicity, male Substance is not listed.  
Information about limitation of use: For use only by technically qualified individuals.  
Other regulations, limitations and prohibitive regulations  
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.  
Substance is not listed.  
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.  
Substance is not listed.  
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.  
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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## **16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.