

<a href="#">(5N) 99.999% Aluminum Oxide Powder</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Balls</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Brick, SK36</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Crucible</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Fiber</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Granule</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Nut</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Paper</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Rod</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Sheet</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Spheres</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Tape</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Tube</a>	<a href="#">Pricing &gt;</a>
<a href="#">Alumina Washer</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Brick</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Bubbles</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Discs</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Foam</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Foil</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Honeycomb</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Insulation Bricks</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Nanofibers</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Nanoparticle Dispersion</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Nanoparticles / Nanopowder</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Nanoparticles, Silane Coated</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Nanowires</a>	<a href="#">Pricing &gt;</a>

<a href="#">Aluminum Oxide Particles</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Paste</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Pellets</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Pieces</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Porous Cover Plate</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Powder</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Rotatable Sputtering Target</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Shot</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Single Crystal Substrate</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Sponge</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Sputtering Target</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Tablets</a>	<a href="#">Pricing &gt;</a>
<a href="#">Aluminum Oxide Wool</a>	<a href="#">Pricing &gt;</a>
<a href="#">Mesoporous Alumina</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Monofilament</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Powder</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Prisms</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Rod</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Sheet</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Sphere</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Tube</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Wafer</a>	<a href="#">Pricing &gt;</a>
<a href="#">Sapphire Windows</a>	<a href="#">Pricing &gt;</a>

<b>Linear Formula</b>	Al <sub>2</sub> O <sub>3</sub>
<b>Pubchem CID</b>	14769
<b>MDL Number</b>	MFCD00003424
<b>EC No.</b>	215-691-6
<b>IUPAC Name</b>	Oxo(oxoalumanyloxy)alumane
<b>Beilstein/Reaxys No.</b>	N/A
<b>SMILES</b>	O=[Al]O[Al]=O
<b>Inchl Identifier</b>	InChI=1S/2Al.3O
<b>Inchl Key</b>	TWNQGVIAIRXVLR-UHFFFAOYSA-N
<b>Signal Word</b>	N/A

<b>Hazard Statements</b>	N/A
<b>Hazard Codes</b>	N/A
<b>Risk Codes</b>	N/A
<b>Safety Statements</b>	N/A
<b>Transport Information</b>	N/A

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## SAFETY DATA SHEET

Date Accessed: 11/26/2022

Date Revised: 05/15/2015

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### SECTION 1. IDENTIFICATION

**Product Identifiers:** All applicable American Elements product codes for CAS #1344-28-1

**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:  
Domestic, North America +1 800-424-9300  
International +1 703-527-3887

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### SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture  
Classification according to Regulation (EC) No 1272/2008

The substance is not classified as hazardous to health or the environment according to the CLP regulation. Classification according to Directive 67/548/EEC or Directive 1999/45/EC

N/A

Information concerning particular hazards for human and environment:

No data available

Hazards not otherwise classified

No data available

Label elements

Labelling according to Regulation (EC) No 1272/2008

N/A

Hazard pictograms

N/A  
Signal word  
N/A  
Hazard statements  
N/A  
WHMIS classification  
Not controlled  
Classification system  
HMIS ratings (scale 0-4)  
(Hazardous Materials Identification System)  
Health (acute effects) = 1  
Flammability = 0  
Physical Hazard = 0  
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:  
1344-28-1 Aluminum oxide  
Identification number(s):  
EC number: 215-691-6

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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

Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

Special hazards arising from the substance or mixture  
If this product is involved in a fire, the following can be released:

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

Environmental precautions:

Do not allow product to enter drains, sewage systems, or other water courses.

Do not allow material to penetrate the ground or soil.

Methods and materials for containment and cleanup:

Pick up mechanically.

Prevention of secondary hazards:

No special measures required.

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

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Information about protection against explosions and fires:

The product is not flammable

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:

Do not store together with acids.

Store away from strong bases.

Store away from oxidizing agents.

Store away from halogens.

Store away from halocarbons.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

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:

1344-28-1 Aluminum oxide (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

EL (Canada) Long-term value: 10 mg/m<sup>3</sup>

EV (Canada) Long-term value: 10 mg/m<sup>3</sup> total dust

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.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk

assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands: Impervious gloves

Inspect gloves prior to use.

Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.

Material of gloves

Nitrile rubber, NBR

Penetration time of glove material (in minutes)

480

Glove thickness

0.11 mm

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: Powder or solid in various forms

Color: White

Odor: Odorless

Odor threshold: No data available.

pH: N/A

Melting point/Melting range: 2045 °C (3713 °F)

Boiling point/Boiling range: 2980 °C (5396 °F)

Sublimation temperature / start: No data available

Flammability (solid, gas): No data available.

Ignition temperature: No data available

Decomposition temperature: No data available

Autoignition: No data available.

Danger of explosion: No data available.

Explosion limits:

Lower: No data available

Upper: No data available

Vapor pressure at 2158 °C (3916 °F): 1.33 hPa (1 mm Hg)

Density at 20 °C (68 °F): 3.965 g/cm<sup>3</sup> (33.088 lbs/gal)

Relative density: No data available.

Vapor density: N/A

Evaporation rate: N/A

Solubility in Water (H<sub>2</sub>O): Insoluble

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

Viscosity:

Dynamic: N/A

Kinematic: N/A

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

Reacts with strong oxidizing agents

Conditions to avoid

No data available

Incompatible materials:

Acids

Bases

Oxidizing agents

Halogens

Halocarbons

Hazardous decomposition products:

Metal oxide fume

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects

Acute toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

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

Skin irritation or corrosion: May cause irritation

Eye irritation or corrosion: May cause irritation

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity:

ACGIH A4: Not classifiable as a human carcinogen:

Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

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:

The Registry of Toxic Effects of Chemical Substances



(RTECS) contains multiple dose toxicity data for this substance.

Additional toxicological information:

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

Carcinogenic categories

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

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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:

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, ADN, IMDG, IATA

N/A

UN proper shipping name

DOT, ADN, IMDG, IATA

N/A

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class  
N/A  
Packing group  
DOT, IMDG, IATA  
N/A  
Environmental hazards:  
N/A  
Special precautions for user  
N/A  
Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code  
N/A  
Transport/Additional information:  
DOT  
Marine Pollutant (DOT):  
No

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## **SECTION 15. REGULATORY INFORMATION**

Safety, health and environmental  
regulations/legislation specific for the substance or  
mixture  
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)  
1344-28-1 Aluminum oxide  
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.  
REACH - Pre-registered substances  
Substance is 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.

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