



From: Mallinckrodt Baker, Inc.  
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24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. And Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

## ALUMINUM OXIDE

### 1. Product Identification

**Synonyms:** AluminAR® CC-10; Aluminum oxide; Alumina; activated Alumina; alpha-Alumina

**CAS No.:** 1344-28-1

**Molecular Weight:** 101.96

**Chemical Formula:** Al<sub>2</sub>O<sub>3</sub> (contains about 11-12% bound water)

**Product Codes:** 0536, 0537, 0538, 0539, 0540

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Aluminum Oxide	1344-28-1	90 - 100%	Yes

### 3. Hazards Identification

#### Emergency Overview

**CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.**

**SAF-T-DATA<sup>(tm)</sup> Ratings** (Provided here for your convenience)

Health Rating: 2 - Moderate

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

#### Potential Health Effects

#### Inhalation:

Hazard is principally that of a nuisance dust. Coughing or shortness of breath may occur in cases of excessive inhalation.

**Ingestion:**

No adverse effects expected.

**Skin Contact:**

May cause irritation with redness and pain.

**Eye Contact:**

No adverse effects expected but dust may cause mechanical irritation.

**Chronic Exposure:**

No adverse effects expected.

**Aggravation of Pre-existing Conditions:**

Not expected to be a health hazard.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes.

Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally.

Get medical attention if irritation persists.

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## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire and to protect against the aluminum oxide dust that may be dispersed in the air.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

Alumina (Aluminum Oxide):

-OSHA Permissible Exposure Limit (PEL):

alpha alumina, 15 mg/m<sup>3</sup> total dust, 5 mg/m<sup>3</sup> respirable fraction

-ACGIH Threshold Limit Value (TLV):

1 mg/m<sup>3</sup> respirable fraction (TWA) Aluminum metal and Insoluble compounds, A4

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

White powder.

### **Odor:**

Odorless.

### **Solubility:**

Insoluble in water.

### **Density:**

4.0 @ 20C/4C

### **pH:**

No information found.

### **% Volatiles by volume @ 21C (70F):**

0

### **Boiling Point:**

2980C (5396F)

### **Melting Point:**

ca. 2000C (ca. 3632F)

### **Vapor Density (Air=1):**

No information found.

### **Vapor Pressure (mm Hg):**

No information found.

### **Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

No information found.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Chlorine trifluoride, Ethylene oxide.

**Conditions to Avoid:**

Incompatibles.

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## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Aluminum Oxide (1344-28-1)	No	No	None

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## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

Not regulated.

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
Aluminum Oxide (1344-28-1)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	--Canada--			
	Korea	DSL	NDSL	Phil.

Aluminum Oxide (1344-28-1)	Yes	Yes	No	Yes
-----\Federal, State & International Regulations - Part 1\-----				
	-SARA 302-		-----SARA 313-----	
Ingredient	RQ	TPQ	List	Chemical Catg.
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Aluminum Oxide (1344-28-1)	No	No	Yes	No

Aluminum Oxide (1344-28-1)	Yes	Yes	No	Yes
-----\Federal, State & International Regulations - Part 2\-----				
	-RCRA-		-TSCA-	
Ingredient	CERCLA	261.33	8(d)	
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Aluminum Oxide (1344-28-1)	No	No	No	

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No  
Reactivity: No (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

**Label Precautions:**

- Use with adequate ventilation.
- Keep container closed.
- Avoid breathing dust.
- Wash thoroughly after handling.
- Avoid contact with eyes, skin and clothing.

**Label First Aid:**

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 8.

**Disclaimer:**

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