



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name ALUMINUM OXIDE
Version # 02
Revision date 08-26-2011
CAS # 1344-28-1
Product Codes J.T.Baker: 0536, 0537, 0538, 0539, 0540
Synonym(s) AluminAR® CC-10; Alumina; activated Alumina; alpha-Alumina
Manufacturer Avantor Performance Materials, Inc.
Address 3477 Corporate Parkway
Suite #200
Center Valley, PA 18034
US
Customer Service 855-282-6867
24 Hour Emergency 908-859-2151
Chemtrec 800-424-9300

2. Hazards Identification

Emergency overview CAUTION
Product dust may be irritating to eyes, skin and respiratory system. Prolonged exposure may cause chronic effects.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

Routes of exposure Inhalation. Skin contact. Eye contact. Ingestion.

Eyes Dust or powder may irritate eye tissue. If irritation should occur, it is expected to be transient.

Skin Dust or powder may irritate the skin.

Inhalation Inhalation of dusts may cause respiratory irritation.

Ingestion Expected to be a low ingestion hazard. May cause temporary irritation of the throat, stomach, and gastrointestinal tract.

Target organs Respiratory system. Lungs.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases. May cause lung damage.

Potential environmental effects The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ALUMINUM OXIDE	1344-28-1	90 - 100

4. First Aid Measures

First aid procedures

Eye contact Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Inhalation Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Ingestion Seek medical advice.

Notes to physician Treat symptomatically.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties This product is not flammable.

Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None known.

Protection of firefighters

Protective equipment and precautions for firefighters Firefighters should wear full protective gear. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Special protective equipment for fire-fighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Keep upwind. Ventilate the area. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods for containment If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Avoid dust formation.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Large Spills: Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.

Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Keep formation of airborne dusts to a minimum. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage Keep container tightly closed. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH			
Material	Type	Value	Form
ALUMINUM OXIDE (1344-28-1)	TWA	1.0000 mg/m3	Respirable fraction.
Occupational exposure limits			
U.S. - OSHA			
Material	Type	Value	Form
ALUMINUM OXIDE (1344-28-1)	PEL	15.0000 mg/m3	Total dust.
		5.0000 mg/m3	Respirable fraction.

Engineering controls	Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.
Personal protective equipment	
Eye / face protection	Use tight fitting goggles if dust is generated.
Skin protection	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: High-efficiency particulate respirator with full facepiece.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Powder.
Color	White.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Powder.
pH	Not available.
Melting point	3632 °F (2000 °C)
Freezing point	3632 °F (2000 °C)
Boiling point	5396 °F (2980 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	4
Relative density	Not available.
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	101.96 g/mol
Molecular formula	Al ₂ O ₃

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong oxidizing agents. Chlorinated compounds. Ethylene Oxide
Hazardous decomposition products	None known.

Possibility of hazardous reactions Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization Not a skin sensitizer.

Acute effects Low hazard for usual industrial or commercial handling.

Local effects May cause eye irritation. May cause skin irritation. May cause irritation to the respiratory system.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases. May cause lung damage.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

ACGIH Carcinogens

ALUMINUM OXIDE (CAS 1344-28-1) A4 Not classifiable as a human carcinogen.

Skin corrosion/irritation May irritate and cause redness and pain.

Epidemiology No epidemiological data is available for this product.

Mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Neurological effects None known.

Reproductive effects Contains no ingredient listed as toxic to reproduction

Teratogenicity No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Symptoms and target organs Irritant effects.

Further information Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

12. Ecological Information

Ecotoxicity The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability No data is available on the degradability of this product.

Partition coefficient (n-octanol/water) Not available

13. Disposal Considerations

Disposal instructions Dispose of contents/container in accordance with local/regional/national/international regulations. Incinerate the material under controlled conditions in an approved incinerator.

Contaminated packaging Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

ALUMINUM OXIDE (CAS 1344-28-1) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

ALUMINUM OXIDE (CAS 1344-28-1) Listed.

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Safe Drinking Water Act (SDWA) Contaminate candidate list

Inventory status

Country(s) or region	Inventory name	On Inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

ALUMINUM OXIDE (CAS 1344-28-1) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

ALUMINUM OXIDE (CAS 1344-28-1) Listed.

Saf-T-Data Health: 3 - Severe
Flammability: 0 - None
Reactivity: 0 - None
Contact: 1 - Slight
Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
Storage Color Code: G - Green (General Storage)

16. Labeling Info

Label Hazard Warning	CAUTION Product dust may be irritating to eyes, skin and respiratory system. Prolonged exposure may cause chronic effects.
Label Precautions	Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.
Label First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. If ingestion of a large amount does occur, call a poison control center immediately.

17. Other Information

NFPA ratings	Health: 1 Flammability: 0 Instability: 0
Disclaimer	THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.
Issue date	08-26-2011