



SAFETY DATA SHEET

Preparation Date: 12/05/2016

Revision Date: 12/05/2016

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: A1099
Product Name: ALUMINUM OXIDE, ACTIVATED, NEUTRAL, BROCKMANN I

Other means of identification

Synonyms: Alumina
CAS #: 1344-28-1
RTECS # BD1200000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000.

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300

Contact Person: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Not classified

Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

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3. COMPOSITION/INFORMATION ON INGREDIENTS

| Components | CAS-No. | Weight % |
|----------------|-----------|----------|
| Aluminum Oxide | 1344-28-1 | 100 |

4. FIRST AID MEASURES

First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.
- Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops. Consult a physician if necessary.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed

- Symptoms** May cause skin irritation. May cause eye irritation. May cause respiratory irritation. May cause digestive (gastrointestinal) tract irritation.

Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

- Suitable Extinguishing Media:** The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

- Unsuitable Extinguishing Media:** No information available.

Specific hazards arising from the chemical

- Hazardous Combustion Products:** No information available.

- Specific hazards:** No information available.

Special Protective Actions for Firefighters

- Specific Methods:** No information available.

Special Protective Equipment for Firefighters:

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, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Avoid dust formation.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest. Do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents
Acids

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

| Components | CAS-No. | OSHA | NIOSH | ACGIH | AIHA WHEEL |
|----------------|-----------|--------------------------|-------|-------|------------|
| Aluminum Oxide | 1344-28-1 | 15 mg/m ³ TWA | None | None | None |

Canada

| Components | CAS-No. | Canada - Alberta | Canada - British | Canada - Ontario | Canada - Quebec |
|------------|---------|------------------|------------------|------------------|-----------------|
| | | | | | |

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| | | | | | |
|----------------|-----------|----------------------------|-----------------|---|---|
| | | | Columbia | | |
| Aluminum Oxide | 1344-28-1 | = 10 mg/m ³ TWA | None | 1.0 mg/m ³ TWA (respirable) (aluminum insoluble compounds) | 10 mg/m ³ TWAEV Al total dust |

Australia and Mexico

| Components | CAS-No. | Australia | Mexico |
|----------------|-----------|--------------------------|----------------------------|
| Aluminum Oxide | 1344-28-1 | 10 mg/m ³ TWA | = 10 mg/m ³ TWA |

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles or Safety glasses with side-shields

Skin and body protection: Long sleeved clothing. apron. Gloves.

Respiratory protection: Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:
Solid

Appearance:
Powder.

Color:
White.

Odor:
Odorless.

Taste
No information available.

Formula:
Al₂O₃

Molecular/Formula weight:
101.96

Flammability:
Non-flammable

Flashpoint (°C/°F):
No information available.

Flash Point Tested according to:
Not available

Autoignition Temperature (°C/°F):
No information available

Lower Explosion Limit (%):
No information available

Upper Explosion Limit (%):
No information available

Melting point/range(°C/°F):
2000-2072°C/ 3632-3761.6°F

Decomposition temperature(°C/°F):
No information available

Boiling point/range(°C/°F):
2977-2980°C/ 5390.6-5396°F

Bulk density:
No information available

Density (g/cm³):
No information available

Specific gravity:

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pH:
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

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

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Insoluble in water
Difficult solubility in mineral acids and strong alkali

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Reactive with acids

Chlorine trifluoride reacts violently with Aluminum oxide producing a flame. Ethylene Oxide may polymerize violently when in contact with Aluminum oxide. Reacts with hot chlorinated rubber

Chemical stability

Stability: Moisture Sensitive. Hygroscopic. Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Avoid dust formation. Incompatible materials.

Incompatible Materials: Oxidizing agents
Acids

Hazardous decomposition products: No information available.

Other Information

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Inhalation. Ingestion.

Acute Toxicity

Component Information

| |
|---------------------|
| Aluminum Oxide |
| CAS-No. 1344-28-1 |

LD50/oral/rat = > 5000 mg/kg Oral LD50 Rat

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LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = > 5000 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

| | |
|--------------------------|--|
| Skin Contact: | May cause skin irritation. May cause skin irritation by mechanical action. |
| Eye Contact: | May cause eye irritation. May cause irritation of the eyes by mechanical action. |
| Inhalation | May cause respiratory tract irritation. |
| Ingestion | May cause digestive (gastrointestinal) tract irritation. |
| Aspiration hazard | No information available. |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated inhalation may cause emphysema, pneumothorax, and may produce small pulmonary radiographic opacities, but are usually not fibrogenic. Some epidemiologic studies have shown excess nonmalignant pulmonary fibrosis or fibrotic changes in the lungs while other have not. May result in high levels of aluminum fibers in the lungs. Also, some reports attribute aluminum oxide exposure as causing pneumoconiosis. However, workers exposed to powdered alumina in the china industry for more than 15 years had no radiological signs of pneumoconiosis. Studies of persons chronically exposed to Aluminum Oxide dust have found a dose-dependent increase of aluminum concentrations in the blood and urine, indicating that systemic distribution of aluminum can occur from dust inhalation. Animal studies showed that the retention of aluminum in the lungs of rats depended on the exposure pattern, with more dust

being retained with longer exposure to lower concentrations than from shorter times with higher doses. Ingestion or Inhalation: Aluminum can accumulate in the bone with consequent increased bone fragility and fractures. This could be due to inhibition of parathyroid hormone.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

| Components | CAS-No. | IARC | ACGIH - Carcinogens | NTP | OSHA HCS - Carcinogens | Australia - Notifiable Carcinogenic Substances | Australia - Prohibited Carcinogenic Substances |
|----------------|-----------|------------|--|------------|------------------------|--|--|
| Aluminum Oxide | 1344-28-1 | Not listed | A4 - Not Classifiable as a Human Carcinogen (listed as Aluminum insoluble compounds) | Not listed | Not listed | Not listed | Not listed |

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

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Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

| Components | CAS-No. | RCRA - F Series Wastes | RCRA - K Series Wastes | RCRA - P Series Wastes | RCRA - U Series Wastes |
|----------------|-----------|------------------------|------------------------|------------------------|------------------------|
| Aluminum Oxide | 1344-28-1 | None | None | None | None |

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Class: No information available
Packing group: No information available
Emergency Response Guide Number: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): No information available
Description: No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant: No Information available
Description: No information available

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available

IMO / IMDG

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant: No information available

RID

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available

Subsidiary Risk: No information available
Packing Group: No information available

ICAO

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available

IATA

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
ERG Code: No information available
Special Provisions No information available

15. REGULATORY INFORMATION

International Inventories

| Components | CAS-No. | U.S. TSCA | KOREA KECL | Philippines (PICCS) | Japan ENCS | CHINA | Australia (AICS) | EINECS-No. |
|----------------|-----------|-----------|---------------------|---------------------|----------------|---------|------------------|----------------------|
| Aluminum Oxide | 1344-28-1 | Present | Present KE-01012 | Present | Present (1)-23 | Present | Present | Present 215-691-6 |

U.S. Regulations

Aluminum Oxide

- Massachusetts RTK:** Present
- New Jersey RTK Hazardous Substance List:** 2891
- New Jersey (EHS) List:** 2891 500 lb TPQ
- New Jersey - Discharge Prevention - List of Hazardous Substances:** Present
- Pennsylvania RTK:** Environmental hazard
- Pennsylvania RTK - Environmental Hazard List** Present
- Pennsylvania RTK - Special Hazardous Substances** Present
- Minnesota - Hazardous Substance List:** Present
- California Directors List of Hazardous Substances:** Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

| Components | CAS-No. | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity: |
|----------------|-----------|------------|------------------------|----------------------------|-------------------------------|
| Aluminum Oxide | 1344-28-1 | Not Listed | Not Listed | Not Listed | Not Listed |

CERCLA/SARA

| Components | CAS-No. | CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting de minimis |
|------------|---------|---|---|--|---------------------------------|------------------------------------|
| | | | | | | |

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| | | | | | | |
|----------------|-----------|------|------|------|------|--------------------------------|
| Aluminum Oxide | 1344-28-1 | None | None | None | None | 1.0 % de minimis concentration |
|----------------|-----------|------|------|------|------|--------------------------------|

U.S. TSCA

| Components | CAS-No. | TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS) | TSCA 8(d) -Health and Safety Reporting |
|----------------|-----------|---|--|
| Aluminum Oxide | 1344-28-1 | Not Applicable | Not Applicable |

Canada

WHMIS hazard class:

Non-controlled

Components Aluminum Oxide

WHIMHAZ

Uncontrolled product according to WHMIS classification criteria

Canada Controlled Products Regulation:

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

| Components | WHMIS Ingredient Disclosure List - |
|----------------|------------------------------------|
| Aluminum Oxide | 1 % |

Inventory

| Components | CAS-No. | Canada (DSL) | Canada (NDSL) |
|----------------|-----------|--------------|---------------|
| Aluminum Oxide | 1344-28-1 | Present | Not Listed |

| Components | CAS-No. | CEPA Schedule I - Toxic Substances |
|----------------|-----------|------------------------------------|
| Aluminum Oxide | 1344-28-1 | Not listed |

| Components | CAS-No. | CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting |
|----------------|-----------|---|
| Aluminum Oxide | 1344-28-1 | Not listed |

EU Classification

R-phrase(s)

not determined (not applicable)

S -phrase(s)

none

| Components | CAS-No. | Classification | Concentration Limits: | Safety Phrases |
|----------------|-----------|----------------|-----------------------|----------------|
| Aluminum Oxide | 1344-28-1 | | No information | |

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

None.

16. OTHER INFORMATION

Preparation Date: 12/05/2016
Revision Date: 12/05/2016
Prepared by: Sonia Owen

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Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet