1. Identification

Product identifier

Product Name
CALCIUM ALUMINATE CEMENT

Other means of identification

Product Code(s) 993


Recommended use of the chemical and restrictions on use

Recommended use
Hydraulic binder. Used for production of refractory concretes and mortars and as ingredient of building chemistry products.

Restrictions on use
No information available

Details of the supplier of the safety data sheet

Supplier Address
Almatis, Inc.
P.O. Box 300
4701 Alcoa Road
Bauxite, AR 72022
USA
Telephone: +1 501-776-4677

Manufacturer Address
Almatis B.V.
Theemsweg 30
NL-3197 KM Botlek Rt
The Netherlands
Phone: +31 181270129

Emergency telephone number

Emergency Telephone US:+1 760 476 3960

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Hazard statements

Precautionary Statements - Prevention
Not applicable

Precautionary Statements - Response
Precautionary Statements - Storage
Store in a dry place

Precautionary Statements - Disposal
Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Other information
Not applicable

3. Composition/information on ingredients

Substance
Not applicable.

Mixture

Common name Calcium Aluminate cement.


<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium aluminate</td>
<td>65997-16-2</td>
<td>40-100</td>
<td>*</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>0-50</td>
<td>-</td>
</tr>
</tbody>
</table>

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms Mild eye irritant. Mild skin irritant.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

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

Unsuitable extinguishing media No information available.
Specific hazards arising from the chemical: Avoid generation of dust.

Explosion data:
- Sensitivity to mechanical impact: None.
- Sensitivity to static discharge: None.

Special protective equipment for fire-fighters: Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Personal precautions: Ensure adequate ventilation. Avoid generation of dust. Do not breathe dust.

Methods and material for containment and cleaning up:

Methods for containment: Prevent further leakage or spillage if safe to do so. Prevent dust cloud.

Methods for cleaning up: Sweep up and shovel into suitable containers for disposal. Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling:

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Avoid generation of dust. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities:

Storage Conditions: Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

Control parameters:

Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>TWA: 1 mg/m$^3$ respirable particulate matter</td>
<td>TWA: 15 mg/m$^3$ total dust TWA: 5 mg/m$^3$ respirable fraction (vacated) TWA: 10 mg/m$^3$ total dust (vacated) TWA: 5 mg/m$^3$ respirable fraction</td>
<td>-</td>
</tr>
</tbody>
</table>

Appropriate engineering controls:

Engineering controls: Showers, Eyewash stations, Ventilation systems.

Individual protection measures, such as personal protective equipment:

Eye/face protection: No special protective equipment required.
### Skin and body protection
Wear suitable protective clothing.

### Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

### General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>White to off-white Powder</td>
<td></td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>White to off-white</td>
<td></td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>11.3 - 11.5</td>
<td>aqueous solution</td>
</tr>
<tr>
<td><strong>Melting point / freezing point</strong></td>
<td>1650 - 1820 °C / °F</td>
<td></td>
</tr>
<tr>
<td><strong>Boiling point / boiling range</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Flammability Limit in Air</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Upper flammability or explosive</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower flammability or explosive</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Water solubility</strong></td>
<td>insoluble</td>
<td></td>
</tr>
<tr>
<td><strong>Solubility in other solvents</strong></td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td><strong>Partition coefficient</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>- / °F</td>
<td>Does not ignite</td>
</tr>
<tr>
<td><strong>Hyphen</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Kinematic viscosity</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Dynamic viscosity</strong></td>
<td>No data available</td>
<td>None known</td>
</tr>
</tbody>
</table>

### Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Liquid Density</td>
<td>2.8-3.3 g/cm³</td>
</tr>
<tr>
<td>Bulk density</td>
<td>750-1100 kg/m³</td>
</tr>
</tbody>
</table>

## 10. Stability and reactivity

### Reactivity
None under normal processing.

### Chemical stability
Stable under normal conditions.

### Possibility of hazardous reactions
Contact with water generates heat.

### Hazardous polymerization
None under normal processing.

### Conditions to avoid
Avoid accumulation of airborne dust.

### Incompatible materials
None known based on information supplied.
Hazardous decomposition products None under normal use conditions.

11. Toxicological information

Information on likely routes of exposure

Product Information

- **Inhalation**: May cause irritation.
- **Eye contact**: Dust contact with the eyes can lead to mechanical irritation. Mild eye irritation.
- **Skin contact**: Causes mild skin irritation.
- **Ingestion**: No known hazard by swallowing.

Symptoms related to the physical, chemical and toxicological characteristics

- **Symptoms**: No information available.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

- **ATEmix (oral)**: 5,005.00 mg/kg

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>&gt; 5000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

- **Skin corrosion/irritation**: No information available.
- **Serious eye damage/eye irritation**: No information available.
- **Respiratory or skin sensitization**: No information available.
- **Germ cell mutagenicity**: No information available.
- **Carcinogenicity**: No information available.
- **Reproductive toxicity**: No information available.
- **STOT - single exposure**: No information available.
- **STOT - repeated exposure**: No information available.
- **Aspiration hazard**: No information available.
- **Other adverse effects**: No information available.
- **Interactive effects**: No information available.
12. Ecological information

Ecotoxicity
Not considered to be harmful to aquatic life.

Persistence and degradability
Not readily biodegradable.

Bioaccumulation
MATERIAL DOES NOT BIOACCUMULATE.

Mobility
No information available.

Other adverse effects
No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products
Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging
Do not reuse empty containers.

14. Transport information

DOT
Not regulated

TDG
Not regulated

MEX
Not regulated

ICAO (air)
Not regulated

IATA
Not regulated

IMDG
Not regulated

RID
Not regulated

ADR
Not regulated

ADN
Not regulated

15. Regulatory information

International Inventories

TSCA
Complies.

DSL/NDSL
Listed on DSL.

EINECS/ELINCS
Complies.

ENCS
Does not comply.

IECSC
Complies.

KECL
Complies.

PICCS
Does not comply.

AICS
Complies.
Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide - 1344-28-1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

US State Regulations
This product does not contain any substances regulated by state right-to-know regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide - 1344-28-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information
NFPA    Health hazards 0    Flammability 0    Instability 0    Physical and chemical properties -
HMIS    Health hazards 0    Flammability 0    Physical hazards 0    Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend  Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
TWA     TWA (time-weighted average)  STEL  STEL (Short Term Exposure Limit)
Ceiling  Maximum limit value  *  Skin designation

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

Prepared By
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Revision date
14-Aug-2020

Revision Note
No information available.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet