1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
Product Code 387

Product Name CALCINED ALUMINA and POLISHING ALUMINA

Contains Aluminum oxide, CAS 1344-28-1

Synonyms A-Aluminas, AB-Aluminas, CL-Aluminas, CT-Aluminas, CTC-Aluminas, E-SY 88, E-SY 1000, Flux Grade, Fusion Grade, Gilox, HVA, IS-Aluminas, LS-Aluminas, MPC, P-Aluminas, RG-Aluminas, Refractory Grade, SC-Aluminas, Special Grade, WRA, Exception: CTC55 - see Material Safety Data Sheet 1000, Exception: CT3000 SDP - see Material Safety Data Sheet 1259

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Adsorbents, Filler, Polishing agent, Refractory, Ceramic

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Almatis GmbH Almatis GmbH Almatis, Inc. Almatis, Inc.
Lyoner Str. 9 Giulinistrasse 2 501 West Park Road 4701 Alcoa Road
60528 Frankfurt 67065 Ludwigshafen Leetsdale, PA 15056 USA USA
Germany Germany
Phone: +49 69 9573410 Phone: +49 621 57070 Phone: +1 412 630-2800 Phone: +1 501 776-4677

Qingdao Almatis Co., Ltd. Almatis Alumina Pvt. Ltd. Almatis Burnside, Inc.
No.1 Song Hua Jiang Road Falta Industrial Growth Centre, 41237 Hwy 22
QGD Econ Dev & Tech Develop Sec III Burnside, LA 70738
Zone 24-Parganas South, West USA
Huangdao 266510 Bengal
P.R. China Falta, India
Phone: +86 532 86957300 Phone: +91 993 3343379 Phone: +1 225 474 1700

For further information, please contact

E-mail address info@almatis.com

1.4. Emergency telephone number

Emergency Telephone Number 3E Global Incident Response Hotline (Almatis access code: 334735)

US: +01 760 476 3962

CHEMTREC: 1(800) 424-9300 (in USA and Canada)
or Access Code + (703) 527-3887 (international)

2. HAZARDS IDENTIFICATION

2.1. - Classification of the substance or mixture

REGULATION (EC) No 1272/2008
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)
Classification according to Regulation (EC) No. 1272/2008 [CLP]
No data available

2.2. Label Elements
Symbol(s)
Not applicable

Signal word
None

EUH210 - Safety data sheet available on request

2.3. Other hazards
No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>REACH Reg. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>&gt;99</td>
<td>01-2119529248-35-0024</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01-2119529248-35-0125</td>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01-2119529248-35-0238</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1. Description of first aid measures
Eye Contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Skin Contact
Wash skin with soap and water.

Ingestion
Rinse mouth

Inhalation
Remove to fresh air

General Advice
If symptoms persist, call a physician
Show this safety data sheet to the doctor in attendance

4.2. Most important symptoms and effects, both acute and delayed
No information available

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician
Treat symptomatically

5. FIRE-FIGHTING MEASURES

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

Extinguishing media which must not be used for safety reasons
No information available

5.2. Special hazards arising from the substance or mixture
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
None in particular.

5.3. Advice for firefighters
Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation
Avoid dust formation

6.2. Environmental precautions
No special environmental precautions required

6.3. Methods and material for containment and cleaning up
Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up
Sweep up and shovel into suitable containers for disposal

6.4. Reference to other sections
See Section 12 for additional information.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling
Handling
Ensure adequate ventilation Handle in accordance with good industrial hygiene and safety practice

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice

Exposure scenario
No information available

7.2. Conditions for safe storage, including any incompatibilities
Keep in a dry place

7.3. Specific end use(s)
No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>EU</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td></td>
<td></td>
<td>VME: 10 mg/m³</td>
<td>VLA-ED: 10 mg/m³</td>
<td>1.25 mg/m³</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0 mg/m³ (a)</td>
</tr>
</tbody>
</table>

(a) GOEL - Germany - TRGS 900 - Occupational Exposure Limits - TWAs, (a) exempt facilities listed in 2.4(8) and (9)

<table>
<thead>
<tr>
<th>Component</th>
<th>Italy</th>
<th>Portugal</th>
<th>Netherlands</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td></td>
<td></td>
<td>TWA: 10 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1344-28-1 ( &gt;99 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA PEL</th>
<th>ACGIH TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>15 mg/m³</td>
<td>1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TWA (total dust); 5 mg/m³</th>
<th>TWA (respirable fraction)</th>
</tr>
</thead>
</table>
387 - CALCINED ALUMINA and POLISHING ALUMINA

<table>
<thead>
<tr>
<th>1344-28-1 ( &gt;99 )</th>
<th>TWA (respirable fraction)</th>
</tr>
</thead>
</table>

Derived No Effect Level (DNEL) 3 mg/m³, respirable, 8 hour TWA
Predicted No Effect Concentration (PNEC) No information available

8.2. Exposure controls
Personal protective equipment
Eye Protection Wear safety glasses with side shields (or goggles)
Skin Protection No special protective equipment required.
Hand Protection No special protective equipment required.
Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
Environmental exposure controls Avoid dust formation

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties
Physical State Powder
Color White
Odor None
pH Not applicable
Flash point (°C) DEGREES Not applicable
Melting Point/Range 2000-2050 °C
Solubility Insoluble
Density 2.7-3.94 g/cm³
Bulk Density 350-1250 kg/m³

10. STABILITY AND REACTIVITY

10.1. Reactivity
None under normal processing

10.2. Chemical Stability
Stable under normal conditions

10.3. Possibility of Hazardous Reactions
None under normal processing

10.4. Conditions to Avoid
None under normal processing

10.5. Incompatible materials
None under normal processing

10.6. Hazardous Decomposition Products
None under normal processing

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Acute Toxicity
Acute toxicity - Oral Conclusive but not sufficient for classification
Acute toxicity - Dermal Conclusive but not sufficient for classification
Acute toxicity - Inhalation Conclusive but not sufficient for classification
387 - CALCINED ALUMINA and POLISHING ALUMINA

Revision Date 12-Oct-2017

(Dusts/Mists)

Oral LD50 > 5000 mg/kg (rat)
Dermal LD50 No effect
Inhalation LC50 > 5 mg/m³ (rat)

Chronic Toxicity

Irritation Conclusive but not sufficient for classification
Corrosivity Conclusive but not sufficient for classification
Sensitization Conclusive but not sufficient for classification
Mutagenic Effects Conclusive but not sufficient for classification
Carcinogenic effects Conclusive but not sufficient for classification
Reproductive Effects Conclusive but not sufficient for classification
Developmental Effects Conclusive but not sufficient for classification
Aspiration Hazard Conclusive but not sufficient for classification

12. ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects Not water endangering
Aquatic toxicity is unlikely due to low solubility

12.2. Persistence and degradability
Not readily biodegradable.

12.3. Bioaccumulative potential
No information available

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
No information available

12.6. Other adverse effects
None

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste from Residues/Unused Products
Disposal should be in accordance with applicable regional, national and local laws and regulations

Contaminated Packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal

14. TRANSPORT INFORMATION

Note: Not classified as dangerous in the meaning of transport regulations

IMDG/IMO Not regulated.
RID Not regulated.
ADR Not regulated
ICAO Not regulated
IATA Not regulated
15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Listed on DSL</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
</tbody>
</table>

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

15.2. Chemical Safety Assessment
A Chemical Safety Assessment has been carried out

16. OTHER INFORMATION

Key literature references and sources for data
www.ChemADVISOR.com/

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Issuing Date 06-Feb-2012
Revision Date 12-Oct-2017

Revision Note
Reason for revision
Revision 23, March 2018
Updated Almatis Inc. address
Updated Prepared By

Updates
The most current version of this Safety Data Sheet is available at this URL:

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End of Safety Data Sheet