SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:

Issuing Date 18-Oct-2019
Revision date 10-Jul-2019
Revision Number 1

1. Identification

1.1. Product identifier

Product Code(s) 387

Product Name CALCINED ALUMINA and POLISHING ALUMINA

Synonyms A-Aluminas, CL-Aluminas, CT-Aluminas, CTC-Aluminas, E-SY 1000,Gilox, GMA, HVA, MPC, P-Aluminas, PSG, RAPOL, RG-Aluminas, Ultimate, WRA.Exception: CTC55 - see Material Safety Data Sheet 1000, Exception: CT3000 SDP - see Material Safety Data Sheet 1259

Molecular weight 101.96

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

Manufacturer Almatis GmbH
Lyoner Str. 9
60528 Frankfurt
Germany
+ 49 69 9573410

For further information, please contact info@almatis.com

1.4. Emergency telephone number

Emergency Telephone GB: +44 20 35147487
UK: 0 800 680 0425

Emergency Telephone - §45 - (EC)1272/2008
Europe 112

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Hazard statements This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.3. Other hazards
3. Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>EC No</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
<th>REACH registration number</th>
</tr>
</thead>
</table>

Full text of H- and EUH-phrases: see section 16

4. First-aid measures

4.1. 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. In the case of skin irritation or allergic reactions see a physician.

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

4.2. Most important symptoms and effects, both acute and delayed

Symptoms Contact with dust can cause mechanical irritation or drying of the skin.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians 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.

Unsuitable extinguishing media No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical No information available.

5.3. Advice for firefighters
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

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions  Ensure adequate ventilation.

For emergency responders  Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions  See Section 12 for additional Ecological Information.

6.3. 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  Pick up and transfer to properly labeled containers.

Prevention of secondary hazards  Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections  Advices on safe handling. See Section 7 for more information. Personal protective equipment [PPE]. See section 8 for more information. Disposal. See section 13 for more information.

7. Handling and storage

7.1. Precautions for safe handling

Advice on safe handling  Ensure adequate ventilation. Avoid generation of dust.

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

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Specific use(s)  Aluminum filter, Heat exchanger, Inert bed support, Refractory.

Risk Management Methods (RMM)  The information required is contained in this Material Safety Data Sheet.

8. Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>-</td>
<td>TWA: 10 mg/m³</td>
<td>TWA:  10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>-</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td>TWA: 4 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Derived No Effect Level (DNEL)
No information available.

### Predicted No Effect Concentration (PNEC)
No information available.

#### 8.2. Exposure controls

**Personal protective equipment**

- **Eye/face protection**: No special protective equipment required. EN 166.
- **Hand protection**: Wear suitable gloves. EN 374.
- **Skin and body protection**: Wear suitable protective clothing. EN 6529.
- **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.

**Environmental exposure controls**: Avoid release to the environment.

### 9. Physical and chemical properties

#### 9.1. 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>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>white Powder</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>white</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>2000 - 2050 °C</td>
<td>Literary reference</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td>Literary reference</td>
</tr>
<tr>
<td>Flash point</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No data available</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper flammability or explosive limits</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Lower flammability or explosive</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>
limits

Vapor pressure
Vapor density
Relative density
Water solubility
Solubility(ies)
Partition coefficient
Autoignition temperature
Decomposition temperature
Kinematic viscosity
Dynamic viscosity
Explosive properties
Oxidizing properties

No information available
No data available
None
No data available
insoluble
insoluble
No data available
No data available
No data available
No data available
No information available
No information available

9.2. Other information

Softening point
Molecular weight
VOC Content (%)
Liquid Density
Bulk density

No information available
101.96
None
2.7-3.94 g/cm³
350-1250 kg/m³

10. Stability and reactivity

10.1. Reactivity

Reactivity

None under normal use conditions.

10.2. Chemical stability

Stability

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

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions

None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

10.4. Conditions to avoid

Conditions to avoid

None known based on information supplied.

10.5. Incompatible materials

Incompatible materials

None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous decomposition products
Not applicable.

11. Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information .
Inhalation
May cause irritation of respiratory tract.

Eye contact
Dust contact with the eyes can lead to mechanical irritation.

Skin contact
No known hazard in contact with skin.

Ingestion
No known hazard by swallowing.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms
No information available.

Numerical measures of toxicity

Component Information

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

Other adverse effects
No information available.

Aspiration hazard
No information available.

12. Ecological information

12.1. Toxicity
Ecotoxicity
Not considered to be harmful to aquatic life.

12.2. Persistence and degradability
Persistence and degradability
Not readily biodegradable.

12.3. Bioaccumulative potential
Bioaccumulation
Does not bioaccumulate.
12.4. Mobility in soil

Mobility in soil  No information available.
Mobility  No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment  No information available.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>PBT and vPvB assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>The substance is not PBT / vPvB PBT assessment does not apply</td>
</tr>
</tbody>
</table>

12.6. Other adverse effects

Other adverse effects  None.

13. Disposal considerations

13.1. 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.

Waste codes / waste designations according to EWC / AVV  According to the European Waste Catalog, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. 01 03 08.

14. Transport information

IMDG

14.1 UN number  Not regulated
14.2 UN proper shipping name  Not regulated
14.3 Transport hazard class(es)  Not regulated
14.4 Packing group  Not regulated
14.5 Marine pollutant  Not applicable
14.6 Special Provisions  None
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code  No information available

RID

14.1 UN number  Not regulated
14.2 UN proper shipping name  Not regulated
14.3 Transport hazard class(es)  Not regulated
14.4 Packing group  Not regulated
14.5 Environmental hazards  Not applicable
14.6 Special Provisions  None

ADR

14.1 UN number  Not regulated
14.2 UN proper shipping name  Not regulated
14.3 Transport hazard class(es)  Not regulated
14.4 Packing group  Not regulated
14.5 Environmental hazards  Not applicable
14.6 Special Provisions  None

IATA
14.1 UN number  Not regulated
14.2 UN proper shipping name  Not regulated
14.3 Transport hazard class(es)  Not regulated
14.4 Packing group  Not regulated
14.5 Environmental hazards  Not applicable
14.6 Special Provisions  None

15. Regulatory information

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009  Not applicable

International Inventories
TSCA  Complies
DSL/NDSL  Listed on DSL
EINECS/ELINCS  Complies
ENCS  Complies
IECSC  Complies
KECL  Complies
PICCS  Complies
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

15.2. Chemical safety assessment

Chemical Safety Report  No information available
16. Other information

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

Legend
SVHC: Substances of Very High Concern for Authorization:

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  Product Safety Department
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This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer
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End of Safety Data Sheet