SAFETY DATA SHEET

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

Issuing Date 18-Feb-2020 Revision date 10-Nov-2021 Revision Number 3

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product Code(s) 387
Chemical 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, Therma, Thermafll F-P, 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
E-mail address info@almatis.com

1.4. Emergency telephone number
Emergency Telephone 3E Global Incident Response Hotline (Almatis access code: 334735)
GB: +44 20 35147487
UK: 0 800 680 0425

Emergency Telephone - §45 - (EC)1272/2008
Not applicable

SECTION 2: Hazards 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 [CLP]

2.2. Label elements
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
Signal word

EGHS / EN Page 1 / 10
Hazard statements
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

Precautionary Statements - EU (§28, 1272/2008)
P403 + P235 - Store in a well-ventilated place. Keep cool

2.3. Other hazards
No information available

SECTION 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>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>215-691-6</td>
<td>1344-28-1</td>
<td>&gt;99</td>
<td>-</td>
<td>01-2119529248-35-XXXX</td>
</tr>
</tbody>
</table>

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

SECTION 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 doctor.
- **Skin contact**: Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.
- **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 doctors**: Treat symptomatically.

SECTION 5: Firefighting 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**: 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.

SECTION 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 dust cloud. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Sweep up and shovel into suitable containers for disposal. Pick up and transfer to properly labelled 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.

SECTION 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.

Identified Uses

Risk Management Methods (RMM)

The information required is contained in this Material Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits
### 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.

Eye protection must conform to standard EN 166.

**Hand protection**
Wear suitable gloves.

Gloves must conform to standard EN 374.

**Skin and body protection**
No special protective equipment required.

**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**
No information available.

## SECTION 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>Colour</td>
<td>white</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Odour 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 °C</td>
<td>Literary reference</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>United Kingdom</th>
<th>France</th>
<th>Germany</th>
<th>Spain</th>
<th>European Union</th>
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<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>TWA: 10 mg/m³ TWA: 4 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 4 mg/m³ TWA: 1.5 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Italy</th>
<th>Portugal</th>
<th>Netherlands</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>-</td>
<td>TWA: 10 mg/m³</td>
<td>-</td>
<td>-</td>
<td>TWA: 5 mg/m³ TWA: 2 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Austria</th>
<th>Switzerland</th>
<th>Poland</th>
<th>Norway</th>
<th>Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>TWA: 5 mg/m³ STEL 10 mg/m³</td>
<td>TWA: 3 mg/m³ STEL 24 mg/m³</td>
<td>TWA: 2.5 mg/m³ TWA: 1.2 mg/m³ STEL: 15 mg/m³</td>
<td>TWA: 10 mg/m³ TWA: 10 mg/m³ STEL: 30 mg/m³ STEL: 12 mg/m³</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Slovakia</th>
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</thead>
<tbody>
<tr>
<td>Aluminum oxide 1344-28-1</td>
<td>TWA: 4 mg/m³ TWA: 1.5 mg/m³</td>
</tr>
</tbody>
</table>

60 µg/g creatinine - urine (Aluminum) - no restrictions
### Boiling point / boiling range
- No data available
- None known

### Flash point
- Not applicable

### Evaporation rate
- No data available
- Not applicable

### Flammability (solid, gas)
- No data available
- Not applicable

### Flammability Limit in Air
- Upper flammability or explosive limits
- Not applicable
- Lower flammability or explosive limits
- -

### Vapour pressure
- No data available
- None known

### Vapour density
- No data available
- Not applicable

### Relative density
- No data available
- Not applicable

### Water solubility
- Insoluble

### Solubility(ies)
- Insoluble

### Partition coefficient
- No data available
- Not applicable

### Autoignition temperature
- No data available
- None known

### Hyphen
- No data available
- None known

### Kinematic viscosity
- No data available
- Not applicable

### Dynamic viscosity
- No data available
- Not applicable

### Explosive properties
- No information available

### Oxidising properties
- No information available

### 9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>101.96</td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>None .?</td>
</tr>
<tr>
<td>Liquid Density</td>
<td>2.7-3.94 g/cm³</td>
</tr>
<tr>
<td>Bulk density</td>
<td>350-1250 kg/m³</td>
</tr>
</tbody>
</table>

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

#### Reactivity
- No information available.

### 10.2. Chemical stability

#### Stability
- Stable under normal conditions.

#### 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 polymerisation
- Hazardous polymerisation does not occur.

### 10.4. Conditions to avoid

#### Conditions to avoid
- Dust formation.

### 10.5. Incompatible materials

#### Incompatible materials
- None known based on information supplied.

### 10.6. Hazardous decomposition products

#### Hazardous decomposition products
- None known based on information supplied.
SECTION 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

Product Information

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</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 sensitisation
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.

**SECTION 12: Ecological information**

12.1. Toxicity

Ecotoxicity  
Not considered to be harmful to aquatic life.

**Product Information**

12.2. Persistence and degradability

Persistence and degradability  
Not readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation  
MATERIAL 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  
The product does not contain any substance(s) classified as PBT or vPvB.

<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  
No information available.

**SECTION 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 Catalogue, 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.

**SECTION 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

SECTION 15: Regulatory information

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

Water hazard class (WGK) | non-hazardous to water (nwg)

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

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (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 | Contact supplier for inventory compliance status
EINECS/ELINCS | Complies
15.2. Chemical safety assessment

Chemical Safety Report
No information available

SECTION 16: Other information

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

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Classification procedure</th>
<th>Method Used</th>
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<tbody>
<tr>
<td>Classification according to Regulation (EC) No. 1272/2008 [CLP]</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute inhalation toxicity - gas</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute inhalation toxicity - Vapour</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute inhalation toxicity - dust/mist</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Respiratory sensitisation</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Calculation method</td>
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<tr>
<td>Mutagenicity</td>
<td>Calculation method</td>
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<tr>
<td>Carcinogenicity</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>Calculation method</td>
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<tr>
<td>STOT - repeated exposure</td>
<td>Calculation method</td>
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<tr>
<td>Acute aquatic toxicity</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Calculation method</td>
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<tr>
<td>Aspiration hazard</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Ozone</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

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