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

1.1. Product identifier

Product Code: 1000
Product Name: REACTIVE ALUMINA SPINEL
Contains: Spinel, CAS 1302-67-6
Synonyms: CTC55, E-SY 2000

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

Recommended Use: Refractory
Uses advised against: No information available

1.3. Details of the supplier of the safety data sheet

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

Almatis GmbH
Giulinistrasse 2
67065 Ludwigshafen
Germany
Phone: +49 621 57070

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)

GB: +44 20 35147487
UK: 0 800 680 0425
US: +01 760 476 3961
US: +01 760 476 3959

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

Not applicable

2.2. Label Elements

Symbol(s)
Not applicable
Signal word
None

Hazard statements
None

2.3. Other information
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>Spinel (Mg(AlO2)2)</td>
<td>1302-67-6</td>
<td>36-99</td>
<td>01-211957267-32-0000</td>
</tr>
</tbody>
</table>
| Aluminum oxide            | 1344-28-1    | 0-64     | 01-2119529248-35-0024  
|                           |             |          | 01-2119529248-35-0125  
|                           |             |          | 01-2119529248-35-0086  
|                           |             |          | 01-2119529248-35-0238  |

### 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**
The product itself does not burn
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**
As in any fire, wear self-contained breathing apparatus and full protective gear.
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protective equipment
Avoid dust formation

6.2. Environmental precautions
No special environmental precautions required

6.3. Methods and material for containment and cleaning up
Recover product. Place into appropriate container for disposal.

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
Provide appropriate exhaust ventilation at places where dust is formed

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>Component</th>
<th>EU</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinel (MgAlO2)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>VME: 10 mg/m³</td>
<td>VLA-ED: 10 mg/m³</td>
<td>1.25 mg/m³</td>
<td>6.0 mg/m³(a)</td>
<td></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>Spinel (MgAlO2)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</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>Spinel (MgAlO2)</td>
<td>N/A</td>
<td>1 mg/m³ TWA (respirable fraction)</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)</td>
<td>1 mg/m³ TWA (respirable fraction)</td>
</tr>
</tbody>
</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 In case of insufficient ventilation, wear suitable respiratory equipment When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

Environmental exposure controls No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State Powder
Color White
Odor None
pH 9.00
Flash point (°C) DEGREES Not applicable
Autoignition temp (°F) DEGREES Does not ignite

Boiling point/range (°C) DEGREES Not determined
Melting Point/Range
Melting point (°C) VALUE 1900 - 2135
Melting point (°C) DEGREES °C
Solubility Insoluble
Density =3.2 g/cm3
Bulk Density Not determined
Explosives None

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
No decomposition if stored and applied as directed

10.5. Incompatible materials
None under normal processing

10.6. Hazardous Decomposition Products
Not applicable

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Acute Toxicity

Acute toxicity - Oral Conclusive but not sufficient for classification
Acute toxicity - Dermal
Acute toxicity - Inhalation (Dusts/Mists)

Chronic Toxicity
Irritation
Corrosivity
Sensitization
Mutagenic Effects
Carcinogenic effects
Reproductive Effects
Developmental Effects
Aspiration Hazard

12. ECOLOGICAL INFORMATION

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

12.2. Persistence and degradability
No information available

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

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>Inventory</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>Not listed</td>
</tr>
<tr>
<td>PICCS</td>
<td>Not listed</td>
</tr>
<tr>
<td>ENCS</td>
<td>Not listed</td>
</tr>
<tr>
<td>IECSC</td>
<td>Not listed</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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Revision Date
26-Mar-2018

Revision Note
Reason for revision
Revision 11, March 2018
Updated emergency telephone numbers
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