1. Identification

1.1. Product identifier

Product Code(s) 154
Product Name TABULAR ALUMINA
Synonyms T60/64 CD and all sizes, T160, T162 all sizes, Filter Bed Alumina (FBA), Premix, Tabalox

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

Recommended use Refractory Aluminum filter Heat exchanger Inert bed support
Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

For further information, please contact
E-mail address info@almatis.com

1.4. Emergency telephone number

Emergency Telephone +1 501-776-4677 3E Global Incident Response Hotline (Almatis access code: 334735)

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

No information available
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>01-2119529248-35-0024</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>01-2119529248-35-0125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>01-2119529248-35-0086</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>01-2119529248-35-0087</td>
</tr>
</tbody>
</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.
Self-protection of the first aider Do not breathe dust.

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 Avoid generation of dust. Fine dust dispersed in air may ignite.
Special protective equipment for fire-fighters

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Ensure adequate ventilation. Avoid generation of dust. Avoid contact with eyes. Use personal protective equipment as required. Do not breathe dust.

Other information
Refer to protective measures listed in Sections 7 and 8.

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
Take up with inert, damp, non-combustible material using clean non-sparking tools and place into loosely covered plastic containers for later disposal. 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
Advises 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
Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Avoid generation of dust. Do not breathe dust. Avoid contact with eyes.

General hygiene considerations
Do not breathe dust.

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)
No information available.

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>
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<td></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</td>
<td>TWA: 10 mg/m³</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>TWA: 5 mg/m³</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>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</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 3 mg/m³</td>
<td>TWA: 2.5 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>1344-28-1</td>
<td>STEL 10 mg/m³</td>
<td>STEL: 24 mg/m³</td>
<td>STEL: 15 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL: 30 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL: 12 mg/m³</td>
<td>TWA: 4 mg/m³</td>
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<td></td>
<td></td>
<td></td>
<td>STEL: 15 mg/m³</td>
<td>TWA: 2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<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</td>
<td></td>
<td>60 µg/g creatinine - urine (Aluminum) - no restrictions</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Derived No Effect Level (DNEL)  No information available.

Predicted No Effect Concentration (PNEC)  No information available.

8.2. Exposure controls

Engineering controls  Apply technical measures to comply with the occupational exposure limits. Showers. Eyewash stations. Ventilation systems.

Personal protective equipment

Eye/face protection  Wear safety glasses with side shields (or goggles).

Hand protection  Wear suitable gloves.

Skin and body protection  If there is a risk of contact:. 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  Do not breathe dust.

Environmental exposure controls  Avoid release to the environment. Avoid creating dust.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid Powder granules Balls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>white Powder granules Balls</td>
</tr>
<tr>
<td>Color</td>
<td>white</td>
</tr>
<tr>
<td>Odor</td>
<td>None.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
</tbody>
</table>
### 9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>2053 °C</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability or explosive</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower flammability or explosive</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>insoluble</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>insoluble</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

#### 10.1. Reactivity

- **Reactivity**: No information available.
- **Remarks**: None under normal processing.

#### 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 polymerization**: None under normal processing.

#### 10.4. Conditions to avoid

- **Conditions to avoid**: Avoid dust formation.

#### 10.5. Incompatible materials

- **Incompatible materials**: None known based on information supplied.
10.6. Hazardous decomposition products

Hazardous decomposition products None under normal processing.

11. Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

- **Inhalation**: Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

- **Eye contact**: Specific test data for the substance or mixture is not available. Dust contact with the eyes can lead to mechanical irritation.

- **Skin contact**: Specific test data for the substance or mixture is not available. May cause irritation.

- **Ingestion**: Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms: No information available.

Numerical measures of toxicity

**Oral LD50**: > 5000 mg/kg (rat)

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 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.

12. Ecological information
12.1. Toxicity

Ecotoxicity

Aquatic toxicity is unlikely due to low solubility. 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

<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.

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 applicable

14.5 Marine pollutant

None

14.6 Special Provisions

No information available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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  

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

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
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) (AÉGL(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

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

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