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

Product identifier

Product Name MicroPolish Alumina Suspension

Product Code(s) 4010081; 4010082; 4010083

(M)SDS Number 1341988_A

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory Use Only

Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Buehler

Manufacturer Address 41 Waukegan Rd
Lake Bluff, IL 60044
www.buehler.com

Phone number +1 847 295 6500

E-mail Address custserv@buehler.com

Emergency telephone number

Global Access Code: 334545
Americas: +1 760 476 3962 Asia Pacific: +1 760 476 3960
Middle East/Africa: +1 760 476 3959 Europe: +1 760 476 3961

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label elements, including precautionary statements

Emergency Overview
The product contains no substances which at their given concentration, are considered to be hazardous to health.

<table>
<thead>
<tr>
<th>Appearance</th>
<th>White</th>
<th>Physical state</th>
<th>Liquid</th>
<th>Odor</th>
<th>Odorless</th>
</tr>
</thead>
</table>

Precautionary Statements - Prevention
Obtain special instructions before use

Precautionary Statements - Response
None

Precautionary Statements - Storage
None

Precautionary Statements - Disposal
None

Hazards not otherwise classified (HNOC)
Not applicable

Other information
No information available

Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>60 - 90%</td>
<td>*</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>5 - 20%</td>
<td>*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

First aid measures

Eye contact
Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin contact
Wash with soap and water.

Inhalation
Remove to fresh air.

Ingestion
Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
No information available.
Effects

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Ensure adequate ventilation.

Environmental precautions

Environmental precautions
See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.
7. HANDLING AND STORAGE

Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Products
None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide</td>
<td>TWA: 1 mg/m³ respirable particulate matter</td>
<td>TWA: 15 mg/m³ total dust</td>
<td>TWA: 5 mg/m³ respirable fraction (vacated)</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td>TWA: 10 mg/m³ total dust (vacated)</td>
<td>TWA: 5 mg/m³ respirable fraction (vacated)</td>
</tr>
</tbody>
</table>

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value
OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits
NIOSH IDLH: Immediately Dangerous to Life or Health

Other Exposure Guidelines
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures
Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection
No special protective equipment required.

Skin and body protection
No special protective equipment required.

Respiratory protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state
Liquid
10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
None known based on information supplied.

Incompatible materials
None known based on information supplied.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Product Information
Specific test data for the substance or mixture is not available.

Inhalation
Specific test data for the substance or mixture is not available.

Eye contact
Specific test data for the substance or mixture is not available.

Skin contact
Specific test data for the substance or mixture is not available.

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

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>Water</td>
<td>&gt; 90 mL/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>&gt; 5000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1344-28-1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization
No information available.

Mutagenic Effects
No information available.

Carcinogenicity
Contains no ingredient listed as a carcinogen.

Reproductive toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Target Organ Effects
Eyes. Respiratory system. Skin. Lungs.

Aspiration Hazard
No information available.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

Not applicable
12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Persistence and Degradability
No information available.

Bioaccumulation
No information available

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods
This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging
Dispose of contents/containers in accordance with local regulations.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT</th>
<th>Proper Shipping Name</th>
<th>NOT REGULATED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard Class</td>
<td>NON REGULATED</td>
</tr>
<tr>
<td>TDG</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>MEX</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td>ICAO</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td>IATA</td>
<td>Proper Shipping Name</td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NON REGULATED</td>
</tr>
<tr>
<td>IMDG/IMO</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td>RID</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td>ADR</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
<tr>
<td>ADN</td>
<td></td>
<td>NOT REGULATED</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

International Inventories
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide - 1344-28-1</td>
<td>1344-28-1</td>
<td>5 - 20%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute Health Hazard: No
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
<th>Rhode Island</th>
<th>Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide - 1344-28-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

International Regulations

Mexico
National occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide - 1344-28-1</td>
<td></td>
<td>Mexico: TWA= 10 mg/m³</td>
</tr>
</tbody>
</table>

Canada
WHMIS Hazard Class
Not determined
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS</td>
<td>Health Hazards</td>
<td>Flammability</td>
<td>Physical Hazard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date
01-Mar-2017

Revision Date
01-Mar-2017

Revision Note
No information available

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