DATE ISSUED: August 2006

PRODUCT IDENTIFICATION

PRODUCT NAME: Activated Alumina

CHEMICAL NAME: Aluminum Oxide

EXPOSURE LIMITS (TWA in mg/m3)

<table>
<thead>
<tr>
<th>COMPONENTS CAB NO.</th>
<th>% BY WEIGHT</th>
<th>ACGIH TLB</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Aluminum oxide 1333-84-2</td>
<td>&lt;97%</td>
<td>15 (total dust), (non-fibrous)</td>
<td>5 (respirable) mg/m3</td>
</tr>
<tr>
<td>*Aluminum silicate 14504-95-1</td>
<td>&lt;0.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HEALTH HAZARD INFORMATION

EYES: Can cause mild irritation, especially when wet.

SKIN: Can cause mild irritation.

INHALATION: Can cause mild upper respiratory tract irritation.

INGESTION: Can cause mild irritation.

Alumina is a low health risk by inhalation and should be treated as a nuisance dust as specified by the ACGIH.

This product contains total silicates at <1% by weight. Total silicates content includes metal silicates, amorphous and crystalline silica. No analytical method exists to detect and differentiate between amorphous and crystalline silica and other silicates at <1% by weight. Based on the chemistry of bauxite—derived products, crystalline silica is not expected to be present in this product.

Medical conditions aggravated by exposure to the product: skin rashes, chronic lung disease, asthma.

EMERGENCY FIRST AID

EYES: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

SKIN: Wash with soap and water for at least 15 minutes. Consult a physician if irritation persists.

INHALATION: Remove to fresh air. Check for clear airway, breathing, and presence of pulse. Provide CPR for persons without pulse or respirations. Consult a physician.

INGESTION: If swallowed, dilute by drinking large amounts of water. Never give anything by mouth to a convulsing or unconscious person. Do not induce vomiting. Consult a physician.
FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING AGENTS: Use fire fighting measures that suit the environment.


ACCIDENTAL RELEASE MEASURES:
Person-related safety precautions: Wear protective clothing.
Measures for environmental protection: No special measures required.
Measures for cleaning/collecting: clean up using dry procedures; avoid dusting.
Additional information: No dangerous substances are released.

PROTECTION AND PRECAUTIONS

HANDLING:
Ensure good ventilation/exhaust at the workplace. Prevent formation of dust.
Provide suction extractors if dust is formed.
Protection against explosions and fires: No special measures required.

STORAGE:
Keep material dry. Storage in one common storage facility is not required.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment. Do not inhale dust. Avoid contact with the eyes.

PHYSICAL PROPERTIES

APPEARANCE: Off-white, crystalline or gelatinous granules, pellets/powder.
BOILING POINT: Undetermined
FREEZING POINT: 3,700°F (2038°C)
VAPOR PRESSURE: Not applicable
AUTOIGNITING: Product is not self igniting
SPECIFIC GRAVITY: 3.2
DENSITY: Loose Bulk: 39-52 lb/ft (0.62-0.83 g/cm ).
pH: 10% in water 9.4-10.1
ODOR: Characteristic
STABILITY AND REACTIVITY

CHEMICAL STABILITY (CONDITIONS TO AVOID): A rise in temperature may result from contact with water.

INCOMPATIBILITY: None.

HAZARDOUS DECOMPOSITION PRODUCTS: None if used according to specifications.

HAZARDOUS POLYMERIZATION: None. Non-corrosive.

DISPOSAL

Collect in containers, bags, or covered dumpster boxes. If reuse or recycling is not possible, material may be disposed of at an industrial landfill.

Waste disposal key: 16 03 01 513 05
Disposal must be made according to official regulations.

TRANSPORT INFORMATION

U.S.A. DOT: Not regulated- Enter the proper freight classification, “MSDS Number” and “Product Name” on the shipping paperwork.

Canadian TDG Hazard Class & PIN: Not regulated.

REGULATORY INFORMATION

*For TSCA inventory reporting purposes, CAS No. 1344-28-1 was assigned for all forms of aluminum oxide instead of the CAS number 1333-84-2 as indicated in Section 2.

U.S. Federal Regulations
TSCA STATUS: All components of this product are listed on the TSCA inventory.
CERCLA REPORTABLE QUANTITY: None.
SARA TITLE III: Section 302 Extremely Hazardous Substances: None
Section 311/312 Hazardous Categories: Immediate (Acute).
Section 313 Toxic Chemicals: None.

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone—depleting chemicals.

Markings According to EU Guidelines:
Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials.

International Regulations
CANADIAN DOMESTIC SUBSTANCES LIST: All components of this product are listed on the Canadian DSL.
EUROPEAN COMMUNITY: All components of this product are listed on ECOIN, the European Core Inventory.
JAPAN: All components of this product are listed on MITI, the Ministry of International Trade Industry.

AUSTRALIA: All components of this product are listed on the AICS inventory.

THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS, AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE AND THE CONDITIONS OF HANDLING AND USE, OR MISUSE, ARE BEYOND OUR CONTROL, SELLER MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.