Material Safety Data Sheet

acc. to 91/155/EEC

Printing date 12/26/2002 Reviewed on 12/26/2002

* 1 Chemical Product and Company Identification

· Product Name: Hydrated Aluminas
   (Ground and unground)

· Other Designations:
  Aluminum Trihydroxide ATH Series, Bayer Hydrated Alumina, Bayerite, BayGranite(R) Series, Bayer Scale
  Fines, C-230, C-231, C-30, C-33/31, C-31C, C-37G, C-333/331, C-40, C-430, C-431, C-530, C-531, C-DPS-1,
  C-NEV-1, Coated ATH, CHSO-1, CV-3002, CV-3003, CV-3004, Flame Gard(R) Series, HC-1, HS-1, Hydral(R)
  Series, Hydral(R) 705, Hydral(R) 707, Hydral(R) 710, Hydral(R) 716, Hydral(R) 719, HyBrite(TM) 100,
  Hydral(R) Coat 2, Hydral(R) Coat 5, Hydral(R) Coat 7, Hydral(R) PGA, Hydral(R) PGA SD, Hydrate 17LVB,
  Hydrogard CP, Hydrogard GP, Hydrogard CSP, KB Series, KC30, KH30, MH-1, MH-2, MHC, Onyx Classica(R)
  18 and SRP-A-89E.

   (R) Registered Trademark of Alcoa World Alumina LLC
   (TM) Trademark of Alcoa World Alumina LLC

· Application of the substance / the preparation
  Fire retarding agent
  Coating

· Manufacturer/Supplier:
  Alcoa World Alumina LLC
  201 Isabella Street
  Pittsburgh, PA 15212-5858 USA
  Health & Safety: +1-412-553-4649


* 2 Composition/Data on components:

<table>
<thead>
<tr>
<th>CAS No:</th>
<th>Component</th>
<th>99.5%</th>
</tr>
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<tbody>
<tr>
<td>21645-51-2</td>
<td>Aluminum trihydroxide</td>
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</tbody>
</table>

· Additional information: Loss on ignition 34-35 %

* 3 Hazards identification

· EMERGENCY OVERVIEW:
· EYES: Can cause mild irritation.
· SKIN: Can cause mild irritation.
· INHALATION: Can cause mild upper respiratory tract irritation.
· INGESTION: Can cause mild irritation.

· Chemical ingredient and possible processing hazards:
  Aluminum trihydroxide: Low health risk by inhalation.

· Hazard description:
· Medical conditions aggravated by exposure to the product:
  Asthma, chronic lung disease, and skin rashes.
· Information pertaining to particular dangers for man and environment See item 11.

· Classification system
  The classification was made according to the latest editions of the EU-lists, and expanded upon from company
  and literature data.

(Contd. on page 2)
4 First aid measures

- **After inhalation**
  Remove to fresh air.
  Check for clear airway, breathing, and presence of pulse.
  Provide cardiopulmonary resuscitation for persons without pulse or respirations.
  Consult a physician.

- **After skin contact**
  Wash with soap and water for at least 15 minutes.
  Consult a physician if irritation persists.

- **After eye contact**
  Flush eyes with plenty of water for at least 15 minutes.
  Consult a physician.

- **After swallowing**
  Do not induce vomiting.
  Never give anything by mouth to a convulsing or unconscious person.
  If swallowed, dilute by drinking large amounts of water.
  Consult a physician.

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

- **Protective equipment:**
  Fire fighters should wear NIOSH approved, positive pressure, self- contained breathing apparatus and full protective clothing when appropriate.

6 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.

7 Handling and storage

- **Handling**
  - **Information for safe handling:**
    Avoid generating dust.
    Provide adequate ventilation if dust is formed.
  - **Information about protection against explosions and fires:** No special measures required.

- **Storage**
  - **Requirements to be met by storerooms and receptacles:** Keep material dry.
  - **Information about storage in one common storage facility:** Not required.
  - **Further information about storage conditions:** None.
8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**
  The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- **Personal protective equipment**
  - **General protective and hygienic measures**
    Avoid contact with the eyes.
    Do not inhale dust.
  - **Breathing equipment:**
    Use suitable respiratory protection in case of insufficient ventilation.
    Suitable respiratory protective device recommended:
    Filter NIOSH N95.
  - **Protection of hands:** Wear appropriate gloves to avoid any skin injury.
  - **Material of gloves:** Strong gloves
  - **Penetration time of glove material** Not applicable
  - **Eye protection:** Safety glasses with full side shields or goggles recommended.

9 Physical and chemical properties:

<table>
<thead>
<tr>
<th>General Information</th>
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<tbody>
<tr>
<td><strong>Form:</strong></td>
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<tr>
<td><strong>Color:</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>Odor:</strong></td>
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</tbody>
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<table>
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<tr>
<th>Change in condition</th>
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<tr>
<td><strong>Melting point/Melting range:</strong> Decomposes before melting.</td>
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<tr>
<td><strong>Boiling point/Boiling range:</strong> Not applicable</td>
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</tbody>
</table>

| Flash point: | Not applicable |

| Auto igniting: | Product is not self igniting. |

| Danger of explosion: | Product does not present an explosion hazard. (See Section 10). |

| Density at 20°C (68°F): | 2.42 g/cm³ |
| | 0.087 lb/in³ |

| Bulk density at 20°C (68°F): | 0.15-1.3 g/cm³ |
| | 9.4-80 lb/ft³ |

| Solubility in / Miscibility with Water: | Insoluble |

| pH-value at 20°C (68°F): | 8.5-10.2 (20% in H2O) |

| Solvent content: | Organic solvents: |
| | 0.0 % |

| Solids content: | 100 % |
**10 Stability and reactivity**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Reactions:**
  Heating the material above 200°C will result in a sudden release of water vapor (steam). Precautions must be taken to dissipate the vapor and any pressure that may be generated. A sudden increase in pressure could cause damage or explosion in enclosed equipment.
- **Dangerous products of decomposition:**
  - Coated ATH:
    - Carbon monoxide and carbon dioxide
    - Formaldehyde
- **Additional information:** Non-corrosive.

**11 Toxicological information**
- **Acute toxicity:**
- **Primary irritant effect:**
  - **On the skin:** Can cause mild irritation.
  - **On the eye:** Can cause mild irritation.
  - **Inhalation:** Can cause mild upper respiratory tract irritation.
  - **Ingestion:** Can cause mild irritation.

**12 Ecological information:**
- **General notes:** Not known to be hazardous to water.

**13 Disposal considerations**
- **Product:**
  - **Recommendation** If reuse or recycling is not possible, material may be disposed of at an industrial landfill.
- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to local or governmental regulations.

**14 Transport information**
- **DOT regulations:**
  - **Hazard class:** -
  - **Remarks:** 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.
- **Land transport ADR/RID (cross-border)**
  - **ADR/RID class:** -
  - **Remarks:** Not regulated
- **Maritime transport IMDG:**
  - **IMDG Class:** -
  - **Marine pollutant:** No
  - **Remarks:** Not regulated
### 15 Regulations

- **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:** None.
  - **Section 313 Toxic Categories:** None.
- **OTHER INFORMATION:**
  - 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.
- **International Regulations:**
  - **CANADIAN DOMESTIC SUBSTANCES LIST:** All components of this product are listed on the Canadian DSL.
  - **AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES:**
    All components of this product are listed on the AICS.
  - **Japan - Existing and New Chemical Substances (ENCS)**
    All components of this product are listed on ENCS.

### 16 Other Information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Hazardous Materials Control Committee
  Preparer: Jon N. Peace, +1-412-553-2293
  Alcoa Inc., 201 Isabella Street, Pittsburgh, PA 15212-5858 USA
  26.12.02 Supersedes 29.03.01
  - **Alcoa MS #:** 134231

- **Appendix:**
  - Guide to Occupational Exposure Values 2002, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
  - Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1991, compiled by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH).
  - TOMES CPS(TM), MICROMEDEX, Inc., 2001
LEGEND:

- ACGIH  American Conference of Governmental Industrial Hygienists
- AICS    Australian Inventory of Chemical Substances
- CAS     Chemical Abstract Services
- CERCLA  Comprehensive Environmental Response, Compensation, and Liability Act
- CFR     Code of Federal Regulations
- CPR     Cardio-pulmonary Resusitation
- DOT     Department of Transportation
- DSL     Domestic Substances List (Canada)
- EINECS  European Inventory of Existing Commercial Chemical Substances
- ENCS    Japan - Existing and New Chemical Substances
- EWC     European Waste Catalogue
- EPA     Environmental Protective Agency
- IARC    International Agency for Research on Cancer
- LC      Lethal Concentration
- LD      Lethal Dose
- MAK     Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
- NDSL    Non-Domestic Substances List (Canada)
- NIOSH   National Institute for Occupational Safety and Health
- NTP     National Toxicology Program
- OEL     Occupational Exposure Limit
- OSHA    Occupational Safety and Health Administration
- PIN     Product Identification Number
- RCRA    Resource Conservation and Recovery Act
- SARA    Superfund Amendments and Reauthorization Act
- STEL    Short Term Exposure Limit
- TCLP    Toxic Chemicals Leachate Program
- TDG     Transportation of Dangerous Goods
- TLV     Threshold Limit Value
- TSCA    Toxic Substances Control Act
- TWA     Time Weighted Average
- WHMIS   Workplace Hazardous Materials Information System

m    meter, cm centimeter, mm millimeter, in inch,
g    gram, kg kilogram, lb pound, µg microgram,
ppm   parts per million, ft feet

* Data compared to the previous version altered.
HYDRATED ALUMINAS

CAUTION

Hazards: Can cause mild irritation of eyes, skin, and upper respiratory tract.

Precautions: Avoid generating dust. Use with adequate ventilation.

Use appropriate personal protective equipment (safety glasses/gloves) to avoid injury. Use appropriate respiratory protection (N95) in case of insufficient ventilation.

Fire Fighting: Product is not flammable. Use fire fighting measures that suit the environment.

First Aid: EYES: Flush eyes with plenty of water 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.

Accidental Release: Clean up using dry procedures; avoid dusting. Pick up mechanically.

See Alcoa Material Safety Data Sheet No. 839 for more information about use and disposal.

Emergency Phone: (412) 553-4001.

INGREDIENTS: CAS NUMBERS:
Aluminum trihydroxide (21645-51-2)

Alcoa World Alumina LLC
201 Isabella Street, Pittsburgh, PA 15212-5858 USA

12/02 839
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