Section 1 - Product and Company Information

Product Name                       ALUMINA, FOR COLUMN
                                    CHROMATOGRAPHY ACTIVITY GRADE SUPER
                                    I TYPE WN-6
Product Number                     A1522
Brand                              SIGMA
Company                            Sigma-Aldrich
Street Address                     3050 Spruce Street
City, State, Zip, Country          SAINT LOUIS MO 63103 US
Technical Phone:                   314 771 5765
Emergency Phone:                   414 273 3850 Ext. 5996
Fax:                               800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name                          CAS #                 SARA 313
ALUMINA ACTIVATED                       1344-28-1             Yes

Formula         Al2O3
Synonyms        A 1 (Sorbent), Abramant, Abramax, Abrarex, Abrasit,
                Activated aluminum oxide, Al-3945 E 1/16'',
                Al-4126 E 1/16'', Alcoa F 1, Almite, Alon C, Aloxite,
                Alumina, alpha-Alumina, alpha-Alumina (ACGIH: OSHA),
                Aluminite 37, Aluminum oxide (Brockmann),
                Aluminum oxide (ACGIH), alpha-Aluminum oxide,
                beta-Aluminum oxide, gamma-Aluminum oxide,
                Aluminum sesquioxide, Alumite (oxide),
                Alundum (OSHA), Alundum 600, A1-0109 P, Al-3916 P,
                A1-4028 T 3/16'', Brockmann, aluminum oxide,
                Cab-O-grip, Catapal S, Catapal SB alumina, Compalo,
                Conopal, Diadur, Diallyminium trioxide, Dispal alumina,
                Dispal M, Dotment 324, Dotment 358, Dural,
                Exolon XW 60, F 360 (Alumina), Fasertone,
                Fasertonerde, G 0 (Oxide), G 2 (Oxide), GK (Oxide),
                Hypalox II, Juberon R, RA 101, Ketjen B, KHP 2, LA 6,
                Lucalox, Ludox CL, Martoxin, Microgrit WCA, Poraminar,
                PS 1 (Alumina), Q-Loid A 30, RC 172DBM

RTECS Number:  BD1200000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Irritant.
Irritating to respiratory system.
Target organ(s): Lungs. Bones.

HMIS RATING

HEALTH: 2*
Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

CONDITIONS OF FLAMMABILITY
Material may have an exothermic reaction above 200°C with halocarbon vapors and may produce toxic hydrochloric acid and phosgene.

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Store in a cool dry place.

SPECIAL REQUIREMENTS
Very hygroscopic.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS
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<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
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<tbody>
<tr>
<td>USA</td>
<td>MSHA Standard</td>
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<td>Remarks: Nuisance Particulates.</td>
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<tr>
<td>USA</td>
<td>OSHA.</td>
<td>PEL</td>
<td>8H TWA 15 MG/M3, TOTAL DUST</td>
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<td>New Zealand</td>
<td>OEL</td>
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<tr>
<td>Remarks: check ACGIH TLV</td>
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EXPOSURE LIMITS
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<tr>
<th>Country</th>
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</table>

Section 9 - Physical/Chemical Properties

Appearance               Physical State: Solid
Property                 Value                     At Temperature or Pressure
Molecular Weight         101.96 AMU                 
PH                       9.4 - 10.1                  20 °C
BP/BP Range              2,980 °C                   
MP/MP Range              2,038 °C                   
Freezing Point           N/A                       
Vapor Pressure           1 mmHg                    2,158 °C
Vapor Density            N/A                       

SIGMA - A1522  www.sigma-aldrich.com  Page 3
Saturated Vapor Conc.    N/A
SG/Density              4 g/cm³
Bulk Density            N/A
Odor Threshold          N/A
Volatile%               N/A
VOC Content             N/A
Water Content           N/A
Solvent Content         N/A
Evaporation Rate        N/A
Viscosity               N/A
Surface Tension         N/A
Partition Coefficient   N/A
Decomposition Temp.     N/A
Flash Point             N/A
Explosion Limits        N/A
Flammability            N/A
Autoignition Temp       N/A
Refractive Index        1.76 - 1.768
Optical Rotation        N/A
Miscellaneous Data      N/A
Solubility              Solubility in Water: Insoluble.

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Conditions to Avoid: Protect from moisture.
Materials to Avoid: Strong acids, Strong bases, Chlorine trifluoride, Ethylene oxide, Halocarbons, Oxygen difluoride, Sodium nitrate, Vinyl acetate.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Aluminum oxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)
Lungs. Bones.

SIGNS AND SYMPTOMS OF EXPOSURE
Prolonged exposure can cause: Damage to the lungs. Exposure can cause: Coughing, chest pains, difficulty in breathing. Gastrointestinal disturbances.

CHRONIC EXPOSURE - CARCINOGEN
Result: This product is or contains a component that is not
classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Species: Rat  
Route of Application: Intrapleural  
Dose: 90 MG/KG  
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.

Species: Rat  
Route of Application: Implant  
Dose: 200 MG/KG  
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic:Tumors at site or application.

Species: Rat  
Route of Application: Implant  
Dose: 200 MG/KG  
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

ACGIH CARCINOGEN LIST

Rating: A4

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Bury in a landfill site approved for the disposal of chemical and hazardous wastes. Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: None  
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA  
Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: Xi  
Indication of Danger: Irritant.  
R: 37  
Risk Statements: Irritating to respiratory system.  
S: 22 36  
Safety Statements: Do not breathe dust. Wear suitable protective clothing.
US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Irritant.
Risk Statements: Irritating to respiratory system.
Safety Statements: Do not breathe dust. Wear suitable protective clothing.
US Statements: Target organ(s): Lungs. Bones.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 0.1 %
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2003 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.