MSDS Number: **A2914** * * * * * *Effective Date:* ***02/03/09*** * * * * * *Supercedes:* ***05/19/08***

MSDS MATERIAL SAFETY DATA SHEET

From: Mallinckrodt Baker, Inc
222 Red School Lane
Phillipsburg, NJ 08865

Emergency Telephone Number: 908-859-2151

CHEMTREC: 800-424-9300 (USA)
703-527-3887(Outside USA and Canada)
CANUTEC: 613-996-6666

NOTE: Use CHEMTREC and CANUTEC phone numbers only in the event of a chemical emergency.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

M A L L I N C K R O D T **J. T. B A K E R**

ALUMINUM SULFATE

1. Product Identification

Synonyms: Sulfuric acid, aluminum salt (3:2), octadeca hydrate; Cake alum; Patent alum
CAS No.: 10043-01-3 (Anhydrous) 7784-31-8 (Octadecahydrate)
Molecular Weight: 666.44
Chemical Formula: Al2(SO4)3.18H2O
Product Codes:
J.T. Baker: 0564
Mallinckrodt: 3208

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Aluminum Sulfate	10043-01-3	98 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

This material hydrolyzes in water to form sulfuric acid, which is responsible for the irritating effects given below.

Inhalation:
Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.
Ingestion:
Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. There have been two cases of fatal human poisonings from ingestion of 30 grams of alum.
Skin Contact:
Causes irritation to skin. Symptoms include redness, itching, and pain.
Eye Contact:
Causes irritation, redness, and pain.
Chronic Exposure:
No information found.
Aggravation of Pre-existing Conditions:
No information found.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:
Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

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5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.
Explosion:
Not considered to be an explosion hazard.
Fire Extinguishing Media:
Keep in mind that addition of water can cause the formation of sulfuric acid.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Cover spill with sodium bicarbonate or soda ash and mix. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Aluminum sulfate absorbs moisture and becomes a safety hazard when spilled because it absorbs moisture and becomes slippery. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
15 mg/m3 (TWA) total dust and 5 mg/m3 (TWA)
respirable fraction for Aluminum metal as Al.
-ACGIH Threshold Limit Value (TLV):
1 mg/m3 respirable fraction (TWA), Aluminum metal and Insoluble compounds, A4.
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Colorless crystals.
Odor:
Odorless.
Solubility:
87 g/100 cc water @ 0C (32F).

Specific Gravity:
1.69 @ 17C/4C
pH:
No information found.
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
No information found.
Melting Point:
87C (189F) Decomposes.
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):
No information found.

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Hydrolyzes to form dilute sulfuric acid. Toxic and corrosive oxides of sulfur may be formed when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Corrosive to metals in the presence of water.
Conditions to Avoid:
Moisture and incompatibles.

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11. Toxicological Information

Anhydrous Material: Oral mouse LD50: 6207 mg/kg; Irritation eyes rabbit: 10 mg/24H severe; investigated as a mutagen and reproductive effector.
18-Hydrate: Oral mouse LD50: > 9 gm/kg; investigated as a mutagen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Aluminum Sulfate (10043-01-3)	No	No	None

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12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

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13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

Not regulated.

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15. Regulatory Information

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--------\Chemical Inventory Status - Part 1\---------------------------------
Ingredient                                    TSCA  EC   Japan  Australia
----------------------------------------------  ----  ---  -----  ---------
Aluminum Sulfate (10043-01-3)                  Yes  Yes   Yes      Yes

--------\Chemical Inventory Status - Part 2\---------------------------------
                                                       --Canada--
Ingredient                                    Korea  DSL   NDSL  Phil.
----------------------------------------------  -----  ---   ----  -----
Aluminum Sulfate (10043-01-3)                  Yes   Yes   No     No

--------\Federal, State & International Regulations - Part 1\----------------
                                        -SARA 302-    ------SARA 313------
Ingredient                              RQ    TPQ     List  Chemical Catg.
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Aluminum Sulfate (10043-01-3)           No    No      No         No

--------\Federal, State & International Regulations - Part 2\----------------
                                                      -RCRA-    -TSCA-
Ingredient                              CERCLA     261.33     8(d)
--------------------------------------  ------     ------    ------
Aluminum Sulfate (10043-01-3)           5000       No         No


Chemical Weapons Convention:  No     TSCA 12(b):  No     CDTA:  No
SARA 311/312:  Acute: Yes      Chronic: No   Fire: No  Pressure: No
Reactivity: No          (Mixture / Solid)
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Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **2** Flammability: **0** Reactivity: **0**
Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.
Label Precautions:
Avoid breathing dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Avoid contact with eyes, skin and clothing.

Label First Aid:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:
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