

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferrous Ammonium Sulfate Standard Solution 0.0625 N

Catalog Number: 1409549

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00714

Chemical Name: Not applicable

CAS No.: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Hazard: Causes eye burns. Carcinogen.

Date of MSDS Preparation:

Day: 02

Month: May

Year: 2006

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ferrous Ammonium Sulfate

CAS No.: 7783-85-9

TSCA CAS Number: 10045-89-3

Percent Range: 1.0 - 10.0

Percent Range Units: weight / volume

LD50: Oral rat LD50 = 3250 mg/kg

LC50: None reported

TLV: 1 mg/m³ (Fe)

PEL: Not established

Hazard: May cause irritation.

Demineralized Water

CAS No.: 7732-18-5

TSCA CAS Number: 7732-18-5

Percent Range: 90.0 - 100.0

Percent Range Units: volume / volume

LD50: None reported

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: No effects anticipated.

Cadmium

CAS No.: 7440-43-9

TSCA CAS Number: 7440-43-9

Percent Range: 0.1 - 1.0

Percent Range Units: weight / volume

LD50: Oral rat LD50 = 225 mg/kg

LC50: Inhalation rat LC50 = 25 mg/m³/30min

TLV: 0.01 mg/m³

PEL: 0.005 mg/m³

Hazard: Toxic. Recognized carcinogen. Cumulative poison. May cause irritation. Experimental teratogen.

Sulfuric Acid

CAS No.: 7664-93-9

TSCA CAS Number: 7664-93-9

Percent Range: 1.0 - 5.0

Percent Range Units: weight / volume

LD50: Oral rat LD50 = 2140 mg/kg.

LC50: Inhalation rat LC50 = 87 ppm/4 hr

TLV: 1 mg/m³ (TWA); 3 mg/m³ (STEL)

PEL: 1 mg/m³

Hazard: Causes severe burns. Harmful if inhaled. Recognized carcinogen.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, light green liquid

Odor: Not determined

CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

CONTAINS CADMIUM: CANCER HAZARD CAN CAUSE LUNG AND KIDNEY DISEASE CONTAINS
SULFURIC ACID WHICH CAN CAUSE CANCER

HMIS:

Health: 4

Flammability: 0

Reactivity: 1

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 3

Flammability: 0

Reactivity: 1

Symbol: Not applicable

Potential Health Effects:

Eye Contact: Causes severe burns

Skin Contact: None reported

Skin Absorption: None reported

Target Organs: None reported

Ingestion: May cause: irritation of the mouth and esophagus nausea vomiting diarrhea rapid pulse and respirations
black stool kidney damage Iron poisoning has resulted in liver damage, coma and death. Iron poisoning is indicated by
pink urine discoloration.

Target Organs: Liver Kidneys

Inhalation: May cause: respiratory tract irritation

Target Organs: None reported

Medical Conditions Aggravated: Pre-existing: Eye conditions Respiratory conditions Liver conditions Kidney
conditions

Chronic Effects: Chronic overexposure may cause cancer chronic irritation or inflammation of the lungs

Cancer / Reproductive Toxicity Information:

An ingredient of this product is an OSHA listed carcinogen.

Cadmium

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen IARC Group 2A: Suspected Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid
generated during chemical processes. Cadmium

NTP Listed Group 2A: Suspected Carcinogen

Cadmium

Additional Cancer / Reproductive Toxicity Information: Contains: a suspected teratogen.

Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water. Call physician if irritation develops.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Product is regulated as RCRA hazardous waste. Mixture contains a component which is regulated as a hazardous air pollutant. Mixture contains a component which is regulated as a water pollutant.
304 EHS RQ (40 CFR 355): Sulfuric Acid - RQ 1000 lbs.
D.O.T. Emergency Response Guide Number: 154

7. HANDLING / STORAGE

Handling: Avoid contact with eyes. Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Keep container tightly closed when not in use. Protect from: light
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin Protection: disposable latex gloves
Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: light
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, light green liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: Not determined
pH: <0.5
Vapor Pressure: Not available
Vapor Density (air = 1): Not available
Boiling Point: ~100°C; 212°F
Melting Point: Not available
Specific Gravity (water = 1): 1.117
Evaporation Rate (water = 1): Not available
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Miscible
Acid: Miscible
Other: Not determined
Metal Corrosivity:
Steel: 0.545 in/yr
Aluminum: 0.240 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heating to decomposition. Exposure to light. Evaporation
Reactivity / Incompatibility: Incompatible with: strong bases
Hazardous Decomposition: Heating to decomposition releases: sulfur oxides nitrogen oxides ammonia
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: Sulfuric acid: Eye rabbit - 1380 µg - SEVERE; Eye rabbit 100 mg rinse - SEVERE
Mutation Data: Cadmium: Cytogenetic analysis - hamster ovary - 1 µmol/l
Reproductive Effects Data: Cadmium: Oral male rat TDLo = 155 mg/kg - 13 weeks pre-mating - effects on newborn growth and behavior; Oral female rat TDLo = 23 mg/kg - 1-22 days after conception - blood and lymphatic system abnormalities
Ingredient Toxicological Data: Cadmium: Oral rat LD50 = 225 mg/kg; Sulfuric Acid: Oral rat LD50 = 2140 mg/kg, Inhalation rat LC50 = 87 ppm/4H; Ferrous Ammonium Sulfate: Oral rat LD50 = 3250 mg/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: Sulfuric Acid: 48 hour TLM in flounder = 100-300 ppm

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002, D006

Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Dispose of material in an E.P.A. approved hazardous waste facility.

Empty Containers: Rinse three times with an appropriate solvent. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste. Dispose of empty container as normal trash.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.

(<10% Sulphuric Acid in Solution)

DOT Hazard Class: 8

DOT Subsidiary Risk: NA

DOT ID Number: UN3264

DOT Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.

(<10% Sulphuric Acid in Solution)

ICAO Hazard Class: 8

ICAO Subsidiary Risk: NA

ICAO ID Number: UN3264

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.

(<10% Sulphuric Acid in Solution)

I.M.O. Hazard Class: 8

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: UN3264

I.M.O. Packing Group: III

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product contains Cadmium and is regulated under 29CFR Subpart Z 1910.1027. This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Cadmium, Ferrous Ammonium Sulfate (Soluble Ammonium Salt); Sulfuric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

302 (EHS) TPQ (40 CFR 355): 1000 lbs. Sulfuric Acid

304 CERCLA RQ (40 CFR 302.4): Sulfuric Acid Ferrous ammonium sulfate: 1000 lbs. Cadmium 10 lbs.

304 EHS RQ (40 CFR 355): Sulfuric Acid - RQ 1000 lbs.

Clean Water Act (40 CFR 116.4): Ferrous ammonium sulfate - RQ 1000 lbs. Sulfuric acid - RQ 1000 lbs.

RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: WARNING - This product contains a chemical known to the State of California to cause cancer.

Identification of Prop. 65 Ingredient(s): Cadmium

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Standard solution

References: Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. In-house information. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

Revision Summary: European MSDS Only Updates in Heading(s) 2,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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