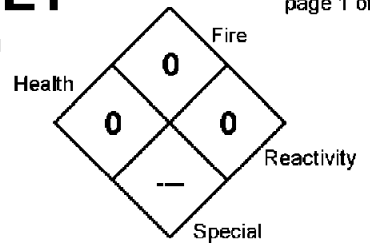


MATERIAL SAFETY DATA SHEET

BRENTAG

NFPA 704 DESIGNATION
HAZARD RATING



4=Extreme
3=High
2=Moderate
1=Slight
0=Insignificant

Brenntag MSDS #:	BPI-00370
MSDS Revision/Issue Date:	03/30/09
Supersedes Revision Date:	New

1. CHEMICAL PRODUCT IDENTIFICATION & COMPANY IDENTIFICATION

PRODUCT IDENTIFIER: Ammonium Sulfate 40% Solution

GENERAL USE: This product is formulated for use in industrial operations and for water treatment processes.

PRODUCT DESCRIPTION: A clear, colorless liquid having a slight characteristic odor.

INFORMATION PROVIDED BY: Brenntag Pacific, Inc.
10747 Patterson Place
Santa Fe Springs, CA 90670

EMERGENCY PHONE NUMBERS

CHEMTREC: 800-424-9300

For MSDS call: **PHONE: 562-903-9626**

2. COMPOSITION & INFORMATION ON INGREDIENTS

COMPONENT	CAS #	OSHA HAZARD	WT %	ACGIH		OSHA	
				TLV _(TWA)	STEL	PEL _(TWA)	STEL
Ammonium Sulfate	7783-20-2	Eye, Skin & Respiratory Irritant; Human Central Nervous System Effects by Ingestion	40 ± 5	None	None	None	None

NDA = No Data Available N/A = Not Applicable

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: A clear, colorless, mildly acidic liquid having a slight characteristic odor. The liquid and mists may be irritating to the eyes and skin. Inhalation of mists may be irritating to the respiratory tract. Ingestion of this product may cause gastrointestinal irritation and central nervous system effects.

POTENTIAL HEALTH EFFECTS

INHALATION: Inhalation of mists may cause irritation to the nose, mouth, throat, mucous membranes and lungs. Symptoms of exposure may include sneezing, coughing, shortness of breath and possible chest discomfort or pain. Inhalation of high mist concentrations, for a period of time, may cause some impairment of lung function.

EYE CONTACT: Exposure to the liquid or mist can cause eye irritation. Symptoms of exposure may include tearing, redness, swelling and discomfort or pain. This product is not expected to cause corneal damage or visual impairment, when treated promptly.

SKIN CONTACT: Contact with the liquid or mist may cause slight to moderate skin irritation. Symptoms of exposure may include redness, swelling, itching and/or discomfort or pain. There is no data indicating this product is absorbed through the intact skin.

INGESTION: Ingestion can cause irritation to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting and diarrhea with possible hyper motility or other central nervous system effects.

CHRONIC: Repeated exposure to this product may result in a skin contact dermatitis; otherwise, the chronic intact skin exposure effects are expected to be the same as for acute exposure.

4. FIRST AID MEASURES

INHALATION: If inhaled, immediately move to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

EYE CONTACT: In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower lids occasionally. Remove contact lenses, if worn. Get medical attention if irritation persists.

SKIN CONTACT: In case of contact, flush skin with plenty of clean running water. Remove contaminated clothing and shoes and wash before reuse. If irritation occurs and persists, get medical attention.

INGESTION: If large quantities of this product are swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIANS: This Ammonium Sulfate solution is slightly toxic. If a large amount is ingested, consideration should be given to careful endoscopy as stomach or esophageal irritation may occur, with possible central nervous system effects following absorption into the blood stream. Careful gastric lavage with an endotracheal tube in place should be considered. Treat exposure symptomatically.

5. FIRE FIGHTING MEASURES

Flashpoint and Method: This product does not flash.

Flammable Limits (in air, % by volume) **Lower:** No data available **Upper:** No data available

Autoignition Temperature: No data available

GENERAL HAZARD: This product is an aqueous, mildly acidic, Ammonium Sulfate (inorganic salt) solution. The Uniform Fire Code health hazard classification for this product is: **Irritant**. It may produce hazardous decomposition products.

FIRE FIGHTING INSTRUCTIONS: **EXTINGUISHING MEDIA:** Water, foam, CO₂ or dry chemicals.
Use a water spray or fog to cool the containers exposed to the heat of a fire.

FIRE FIGHTING EQUIPMENT: Fire fighters should wear full protective equipment, including self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: When heated to dryness and decomposition, it emits toxic Ammonia gas plus toxic sulfur oxides and nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

LAND SPILL: Wearing recommended protective equipment and clothing, dike the spill and pick up the bulk of liquid using pumps or vacuum truck for potential recovery and return to the appropriate container. Absorb the remaining liquid using sand or commercial absorbent; dispose as non-hazardous solid waste. Flush the spill area with water; collect the rinsates for disposal or sewer, as appropriate.

WATER SPILL: Wear recommended protective equipment and clothing if contact with hazardous material can occur. Stop or divert water flow. Dike contaminated water and remove for disposal and/or treatment. As appropriate, notify all downstream users of possible contamination.

7. HANDLING AND STORAGE**STORAGE TEMPERATURE:** Ambient**STORAGE PRESSURE:** Ambient

GENERAL: Store in a cool, dry, well-ventilated area, away from incompatible materials and products. Protect eyes, skin and clothing from contact with product. Wear recommended personal protective equipment when handling this product. Do not breathe vapors or mists. Use with adequate ventilation. Do not take internally. Keep the container tightly closed when not in use. Wash thoroughly after handling this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL MEASURES: Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, below an ACGIH-TLV, OSHA-PEL or levels that may cause irritation.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATOR: For exposure above an ACGIH-TLV, OSHA-PEL or levels that may cause irritation, wear a NIOSH-approved full facepiece or half mask air-purifying cartridge respirator equipped with a good mist / particulate cartridge or supplied air.

EYES: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full facepiece respirator is worn.

GLOVES: Wear plastic or rubber gloves.

CLOTHING & EQUIPMENT: When handling this product, wear a plastic or rubber apron. An eye wash station and safety shower should be available in the work area.

FOOTWEAR: If contact is likely, wear rubber boots.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless	Bulk Density (pounds/ft³):	Not applicable
Physical State:	Liquid	Vapor Pressure:	No data available
Odor:	Slight, characteristic	Vapor Density (air=1):	No data available
Odor Threshold:	No data available	Evaporation Rate (n-Butyl Acetate=1):	No data available
Molecular Formula:	(NH ₄) ₂ SO ₄ (in water)	VOC Content:	Nil
Molecular Weight:	132.16 (in water)	% Volatile:	Approximately 60
Boiling Point:	Greater than 100° C. (212° F.)	Solubility in H₂O:	Complete
Freezing/Melting Point:	Less than 0° C. (32° F.)	Octanol/Water Partition Coefficient:	No data available
Specific Gravity:	Approximately 1.232 @ 20° C.	pH (as is):	4.0 to 5.0
Density (pounds/gallon):	Approximately 10.28	pH (1% solution):	5.0 to 6.0

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

CONDITIONS TO AVOID: None known.

INCOMPATIBLE MATERIAL: Oxidizers, caustics and strong alkali.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to dryness and decomposition, it emits toxic Ammonia gas plus toxic oxides sulfur and nitrogen.

SENSITIVITY TO MECHANICAL IMPACT: This product is not sensitive to mechanical impact.

SENSITIVITY TO STATIC DISCHARGE: This product is not sensitive to static discharge.

11. TOXICOLOGICAL INFORMATION

Components:	Ammonium Sulfate
Eye Contact:	No data available
Skin Contact:	No data available
Oral Rat LD₅₀:	2,840 mg/kg
Dermal Rabbit LD₅₀:	No data available
Inhalation Rat LC₅₀:	No data available
Human Data:	Oral Man TD _{Lo} : 1,500 mg/kg (Gastrointestinal effects)
Other Toxicological Data:	Intraperitoneal Mouse LD ₅₀ : 610 mg/kg
Carcinogenicity:	No data available
Teratogenicity:	No data available
Mutagenicity:	No data available
Synergistic Products:	None reported
Target Organs:	Eyes, Skin, Mucous membranes, Lungs & Central Nervous System
Medical Conditions	
Aggravated By Exposure:	Skin or Respiratory disorders

12. ECOLOGICAL INFORMATION**ENVIRONMENTAL FATE:**

This product is heavier than water, completely soluble in water and not expected to significantly affect the pH of water.

ENVIRONMENTAL CONSIDERATIONS:

The aquatic toxicity for this product has not been determined. However, the aquatic toxicity for Ammonium Sulfate is: TLm 24 hours
Daphnia magna = 423 mg/Liter.

13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 CLASSIFICATION: Non-Hazardous Waste

U.S. EPA WASTE NUMBER/DESCRIPTION: Not applicable

If this product is disposed of as shipped, it does not meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. As a non-hazardous liquid waste, it should be disposed of in accordance with all local, state and federal regulations. Consult state or local officials for proper disposal method.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Not Restricted			
	Hazard Class:	Not applicable	UN Number:	Not applicable
	Primary Label:	None Required	Subsidiary Label(s):	None Required
	Primary/Subsidiary Placards:	None Required		
DOT Reportable Quantity (RQ):	Not listed	RQ for Product:	Not applicable	
Marine Pollutant:	No			
2008 North American Emergency Response Guidebook No.:	Not applicable			
TDG PROPER SHIPPING NAME:	NOT RESTRICTED			
	Hazard Class:	Not applicable	UN Number:	Not applicable
	Primary Label:	None Required	Subsidiary Label(s):	None Required
	Primary/Subsidiary Placards:	None Required		
TDG Reportable Quantity (RQ):[#]	Not applicable			
TDG Schedule XII:	Not applicable			
Regulated Limit (RL):^{###}	Not listed	RL for Product:	Not applicable	
Other Shipping Information:	None			

[#] Canadian Transportation of Dangerous Goods Regulations (TDGR), Part IX, Table I, Quantities or levels for Immediate Reporting: releases of reportable quantities, RQ, that meet the definition of a "dangerous occurrence" (a threat to life, health, property, or the environment) must be reported to the appropriate authorities as outlined in TDGR 9.13(1) and 9.14(1).

^{###} Reporting to Environment Canada is required for any releases exceeding the regulated limits, RL, of 9.2 materials (primary or secondary). The regulated limits are found in Schedule XIII of the TDGR.

15. REGULATORY INFORMATION

COMPONENTS: Ammonium Sulfate
OSHA Target Organs: Eyes, Skin, Mucous membranes, Lungs & Central Nervous System

Carcinogenic Potential:

Regulated by OSHA: No
Listed on NTP Report: No
Listed by IARC: No
 IARC Group: Not applicable
ACGIH Appendix A: Not listed
 A1 Confirmed Human: Not applicable
 A2 Suspected Human: Not applicable

U.S. EPA Requirements**Release Reporting****CERCLA (40 CFR 302)**

Listed Substance: Not listed
 Reportable Quantity: Not applicable
 Category: Not applicable
 RCRA Waste No.: Not applicable
Unlisted Substance: Not applicable
 Reportable Quantity: Not applicable
 Characteristic: Not applicable
 RCRA Waste No.: Not applicable

SARA TITLE III**Section 302 & 303 (40 CFR 355):**

Listed Substance: Not listed
 Reportable Quantity: Not applicable
 Planning Threshold: Not applicable

Section 311 & 312 (40 CFR 370):

Hazard Categories (product): **Fire: N Sudden Release of Pressure: N Reactive: N Acute Health: Y Chronic Health: N**
 Planning threshold: 10,000 pounds

Section 313 (40 CFR 372):

Listed Toxic Chemical: Yes (Aqua Ammonium Salts)
 Reporting Threshold: 10,000 pounds

U.S. TSCA Status

Listed (40 CFR 710): Yes

State Regulations**State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):**

Carcinogen: No
Reproductive Toxin: No

Other Regulations

State Right To Know Laws: None known

Canadian Regulations**Product Information:**

Controlled Product: Yes
WHMIS Hazard Symbols: Material Causing Other Toxic Effects
WHMIS Class & Division: D.2B

Ingredient Information:

IDL Substance: No
DSL or NDSL Lists: DSL

16. OTHER INFORMATION**EPA Registration number:** Not applicable**Approved Product Uses:** Not applicable**Special Notes:**

This product is not manufactured to contain any material, which the State of California has found to cause cancer and/or birth defects or other reproductive harm.

Special Instructions:

Do not add Ammonium Sulfate 40% Solution to strong alkali or caustic materials, as this will liberate toxic, corrosive Ammonia gas.

Store Ammonium Sulfate 40% Solution in a cool, dry, well ventilated area away from incompatible materials and products.

MSDS Revision Information: Information Revised This Issue Date: **New product MSDS.**

Form Revision made 2/19/09

MSDS Distributed by: Brenntag Pacific, Inc.

Prepared By: Edward Doheny**Date Prepared:** March 30, 2009

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