SAFETY DATA SHEET

Product produced by PCI Nitrogen, LLC under Patent No. 9,540,288

Ammonium Sulfate

1. IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY

Product Name:	Ammonium Sulfate
Product Code:	AS
Synonyms:	Ammonium Sulphate; Diammonium Sulfate
Product Use:	Agricultural and industrial. For industrial and agricultural use only.
Manufacturer:	PCI Nitrogen, LLC 2001 Jackson Rd Pasadena, TX 77506 713-920-5300 www.pcicorp.net
Emergency Phone #s:	CHEMTREC 1-800-424-9300 (within US)

2. HAZARDS IDENTIFICATION

Hazards:	Acute Toxicity, 4 (Oral), H302 Eye Irritant, 2A, H319

Label Elements

Hazard Symbol:	
Signal Word:	Warning
Hazard Statement:	H302 - Harmful if swallowed H319 - Causes serious eye irritation

Precautionary Statements

	P264 - Wash hands and forearms thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P301, P312 - If swallowed, call a doctor if you feel unwell. P305, P351, P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P330 - If swallowed, rinse mouth. P337, P313 - If eye irritation persists: Get medical advice/attention. P501 - Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.
Hazard(s) Not Otherwise Classified:	Not classified
Supplemental Information:	Not applicable

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredients	% (w/w)	CAS Number	Hazards
Ammonium sulfate	98	7783-20-2	Acute Toxicity, 4 (Oral), H302
Aluminum sulfate	2	10043-01-3	Corrosive to Metals, 1, H290 Acute Toxicity, 4 (Oral), H302 Eye Damage, 1, H318

4. FIRST AID MEASURES

General:	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).
Inhalation:	Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Seek immediate medical advice.
Eye Contact:	Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Skin Contact:	Brush off loose particles from skin. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.
Ingestion:	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Rinse mouth.

Most Important Symptoms and Effects, both acute and delayed

General:	Harmful if swallowed. Eye irritation.
Inhalation:	May cause respiratory irritation. Symptoms may be delayed.
Eye Contact:	Causes serious eye irritation.
Skin Contact:	May cause skin irritation.
Ingestion:	Harmful if swallowed.
Chronic Symptoms:	Repeated or prolonged skin contact may cause dermatitis and defatting.

5. FIRE FIGHTING MEASURES

Conditions of Flammability:	Non Flammable
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire. Do not get water inside containers. Do not apply water stream directly at source of leak.
Fire Fighting Procedures:	Exercise caution when fighting any chemical fire. Do not enter the fire area without proper protective equipment, including respiratory protection. Do not allow run-off from fire fighting to enter drains or water courses.

Fire & Explosion Hazards:	Not Explosive Hazardous reactions will not occur under normal conditions May release hazardous combustion products (sulfur oxides, nitrogen oxides)

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment And Emergency Procedures

General:	Avoid all contact with skin, eyes, or clothing. Do not breathe dust. Handle in accordance with good industrial hygiene and safety practice.
For Non- Emergency Personnel:	Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection. Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel.
For Emergency Responders:	Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection. Stop leak if safe to do so. Eliminate ignition sources. Ventilate area.
Environmental Precautions:	Do not allow to enter drains or water courses. Avoid release to the environment.

Methods And Materials For Containment And Clean Up

For Containment:	Contain and collect as any solid.
Methods for Cleaning Up:	Clean up spills immediately and dispose of waste safely.

7. HANDLING AND STORAGE

Handling:	Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Handle in accordance with good industrial hygiene and safety procedures.
Storage:	Store in original container or corrosive resistant and/or lined container. Store in a dry, cool and well-ventilated place. Store away from other materials. Incompatible with: Reducing agents, organic materials, alkalis, moisture, strong acids, strong bases, strong oxidizers.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limits:	No exposure limits noted for ingredient(s).
Exposure Guidelines:	No exposure limits noted for ingredient(s).
Engineering Controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

Personal Protection Equipment

Hand Protection:	Wear chemically resistant protective gloves.
Eye / Face Protection:	Chemical goggles or safety glasses.
Skin Protection:	Wear suitable protective clothing.
Respiratory Protection:	Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.
General Hygiene Considerations:	When using, do not eat, drink or smoke.

9. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	White granules
Odor:	Not available
Odor Threshold:	Not available
pH:	3.5 (10% Solution)
Evaporation Rate (Butyl Acetate=1):	Not available
Melting/Freezing Point:	-235°C (-391°F)
Boiling Point:	> 280 °C (536 °F)
Flash Point:	Not available
Auto-ignition Temperature:	Not available
Decomposition Temperature:	Not available
Flammability (solid, gas):	Not available

Lower Flammable Limit:	Not available
Upper Flammable Limit:	Not available
Vapor Pressure:	Not available
Relative Vapor Density at 20°C:	Not available
Relative Density:	1.58 (water = 1)
Solubility:	Soluble in water
Log Pow:	See Section 12
Log know:	Not available
Viscosity, Kinematic:	Not available
Viscosity, Dynamic:	Not available
Explosion Data – Sensitivity to Mechanical Impact:	Not available
Explosion Data – Sensitivity to Static Discharge:	Not available

10. STABILITY AND REACTIVITY

Reactivity:	Hazardous reactions will not occur under normal conditions.
Stability:	Stable at standard temperature and pressure.
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Extremely high or low temperatures. Protect from moisture.
Incompatible Materials:	Strong acids. Strong bases. Strong oxidizers.
Decomposition Products:	Ammonia. Nitrogen oxides. Sulfur compounds.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	Harmful if swallowed
LD50 and LC50 Data:	See below and Section 12
Skin Corrosion/ Irritation:	Not classified

Serious Eye Damage/ Irritation:	Causes serious eye irritation
Respiratory or Skin Sensitization:	Not classified
Germ Cell Mutagenicity:	Not classified
Teratogenicity:	Not available
Carcinogenicity:	Not classified
Specific Target Organ Toxicity (Repeated Exposure):	Not classified
Specific Target Organ Toxicity (Single Exposure):	Not classified
Reproductive Toxicity:	Not classified
Aspiration Hazard:	Not classified
Potential Adverse Human Health Effects and Symptoms:	Harmful if swallowed
Symptoms/ Injuries After Inhalation:	May cause respiratory irritation Symptoms may be delayed
Symptoms/ Injuries After Skin Contact:	May cause skin irritation
Symptoms/ Injuries After Eye Contact:	Causes serious eye irritation
Symptoms/ Injuries After Ingestion:	Harmful if swallowed
Chronic Symptoms:	Repeated or prolonged skin contact may cause dermatitis and defatting

Information on Toxicological Effects – Ingredients(s) – LD50 and LC50 Data

Ammonium Sulfate (7783-20-2)

LD50 Oral Rat	2000 mg/kg
ATE (oral)	2000 mg/kg body weight

Aluminum Sulfate (10043-01-3)

LD50 Oral Rat	1930 mg/kg

12. ECOLOGICAL INFORMATION

Toxicity

Ammonium Sulfate (7783-20-2)

LC50 Fish 1	5.2 - 8.2 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	423 mg/l (Exposure time: 24 h - Species: Daphnia magna)
LC50 Fish 2	32.2 - 41.9 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	14 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Aluminum Sulfate (10043-01-3)

LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Carassius auratus)
EC50 Daphnia 1	136 mg/l (Exposure time: 15 min - Species: Daphnia magna)
LC50 Fish 2	37 mg/l (Exposure time: 96 h - Species: Gambusia affinis [static])

Persistence and Degradability

Ammonium Sulfate (7783-20-2)

Persistence and Degradability	Not established

Bioaccumulative Potential

Ammonium Sulfate (7783-20-2)

Bioaccumulative Potential	Not established
Log Pow	-5.1 (at 25 °C)
Mobility in Soil:	Not available
Other Adverse Effects:	Avoid release to the environment

13. DISPOSAL CONSIDERATIONS

Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

14. TRANSPORT INFORMATION

DOT UN No.:	Not regulated
DOT Proper Shipping Name:	Not regulated
DOT Hazard Classes:	Not regulated
DOT Symbols:	Not regulated
DOT Packing Group:	Not regulated
DOT Reportable Quantity (RQ):	5,000 lb of Aluminum Sulfate; see Section 3 for weight percent.
USCG CHRIS Codes:	AMS - Ammonium Sulfate ALS - Aluminum Sulfate

15. REGULATORY INFORMATION

US Federal Regulations

Ammonium Sulfate (7783-20-2)

United States TSCA (Toxic Substances Control Act) inventory	Yes
EPCRA (SARA) § 313 Toxic Release Inventory (TRI)	Yes[1]
Ammonia, CAS 7664-41-7 25.8% *(Aqueous ammonia from the disassociation of ammonium salts)*	
EPCRA (SARA) § 302 Extremely Hazardous Substance (EHS)	No
EPCRA (SARA) § 302 Threshold Planning Quantity (TPQ)	No
EPCRA (SARA) § 302 EHS Reportable Quantity (RQ)	No
CERCLA Reportable Quantity (RQ)	No
CERCLA Hazardous Substance	No

Aluminum Sulfate (10043-01-3)

United States TSCA (Toxic Substances Control Act) inventory	Yes
EPCRA (SARA) § 313 Toxic Release Inventory (TRI)	Yes[1]
EPCRA (SARA) § 302 Extremely Hazardous Substance (EHS)	No
EPCRA (SARA) § 302 Threshold Planning Quantity (TPQ)	No
EPCRA (SARA) § 302 EHS Reportable Quantity (RQ)	No
CERCLA Reportable Quantity (RQ) *(See Section 3 for weight percent)*	5,000 lb.
CERCLA Hazardous Substance	Yes

[1]Water dissociable ammonium compound

US State Regulations

Ammonium Sulfate (7783-20-2)

U.S. - California - SCAQMD - Toxic Air Contaminants With Proposed Risk Values
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Aluminum Sulfate (10043-01-3)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Polluting Materials List
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Canadian Regulations

Ammonium Sulfate

WHMIS Classification:	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Ammonium Sulfate (7783-20-2)

Listed on the Canadian DSL (Domestic Substances List) Inventory
Listed on the Canadian Ingredient Disclosure List

WHMIS Classification:	Uncontrolled product according to WHMIS classification criteria

Aluminum Sulfate (10043-01-3)

Listed on the Canadian DSL (Domestic Substances List) Inventory

WHMIS Classification:	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

16. OTHER INFORMATION

Prepared by:	Technical Staff at PCI Nitrogen, LLC. Telephone: 713-920-5300

The information contained in this Safety Data Sheet (SDS) relates only to the specific product(s) designated herein. The information and recommendations are based upon data believed to be current as of the date of this SDS and was obtained from sources believed to be accurate. However, this information is furnished without warranty, representations, or license of any kind, express or implied, with respect to accuracy, correctness, or completeness and neither PCI Nitrogen, LLC nor its marketing affiliates assume any legal responsibility for use or reliance upon same.