

SAFETY DATA SHEET

Preparation Date: 05/19/2015

Revision date 4/8/2019

Revision Number: G3

1. IDENTIFICATION

Product identifier

Product code: A1249
Product Name: AMMONIUM SULFATE, BIOTECHGRADE

Other means of identification

Synonyms: Ammonium hydrogen sulfate
 Ammonium sulfate
 Ammonium sulfate ((NH₄)₂SO₄)
 Ammonium sulfate (2:1)
 Ammonium sulphate
 Diammonium sulfate
 Diammonium sulphate
 Dolamin
 Mascagnite
 Sulfuric acid, diammonium salt

CAS #: 7783-20-2
RTECS # BS4500000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Feed additive. Chemical intermediate. Cellulose insulation. Fire extinguishing agent. Production of metals, noble metals. Woodworking industry for production of curing agents for urea-formaldehyde and melamine-formaldehyde resins used in the manufacture of chipboard. In pharmaceuticals. Textile industry. Analytic Chemistry. In flame-retardant products. Food Additive. Fertilizer compositons. Herbicide.

Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Skin corrosion/irritation	Category 2
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Serious eye damage/eye irritation	Category 2B
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Label elements

Warning

Hazard statements
 Causes skin irritation
 Causes eye irritation



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

May be harmful if swallowed
 Harmful to aquatic life with long lasting effects
 Harmful to aquatic life

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Wear protective gloves

Precautionary Statements - Response

Specific treatment (see .? on this label)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
 IF ON SKIN: Wash with plenty of water
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash it before reuse

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Ammonium Sulfate	7783-20-2	100

4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If symptoms persist, call a physician.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give

oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms Causes eye irritation
Causes skin irritation
May cause irritation of respiratory tract
May cause digestive (gastrointestinal) tract irritation
May cause abdominal pain, nausea, vomiting, diarrhea
Central nervous system effects

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous combustion products If it is involved in a fire the following can be released:
Sulfur oxides. Ammonia. Nitrogen oxides (NOx).

Specific hazards A mixture of ammonium sulfate and potassium chlorate decomposes with incandescence when heated. When a little ammonium sulfate is added to fused potassium nitrite, a vigorous reaction occurs attended by flame. If accidentally mixed with oxidizers like potassium chlorate, potassium nitrate or potassium nitrite, there is an explosion hazard. A mixture of ammonium sulfate and ammonium nitrate can easily be exploded by potassium or sodium-potassium alloy. Reaction with sodium hypochlorite and ammonium sulfate produces the unstable explosive nitrogen trichloride.

Special Protective Actions for Firefighters

Specific Methods: No information available

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

Environmental precautions Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide appropriate exhaust ventilation at places where dust is formed. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest. Do not smoke. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

Strong oxidizing agents
Strong bases

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Ammonium Sulfate	7783-20-2	None	None	None	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Ammonium Sulfate	7783-20-2	None	None	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Ammonium Sulfate	7783-20-2	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles Safety glasses with side-shields.
- Skin and body protection:** Long sleeved clothing
apron
Gloves
- Respiratory protection:** Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid	Appearance: Crystalline solid.	Color: Brownish-gray. White.
Odor: Odorless.	Taste No information available.	Formula (NH ₄) ₂ SO ₄
Molecular/Formula weight (g/mole): 132.14	Flammability (solid, gas) no data available	Flashpoint (°C/°F): No information available
Flash Point Tested according to: Not available	Autoignition Temperature (°C/°F): No information available	Lower Explosion Limit (%): No information available
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): 280°C/ 536°F	Decomposition temperature(°C/°F): 280-350°C/ 536-662°F
Boiling point/range(°C/°F): No information available	Bulk density: No information available	Density (g/cm³): No information available
Specific gravity: 1.77	pH 5.0-6.0 at 132g/l @ 25°C	Vapor pressure @ 20°C (kPa): No information available
Evaporation rate: No information available	Vapor density: No information available	VOC content (g/L): No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
-5.1

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Soluble in cold water
Insoluble in Acetone
Insoluble in Ethanol

10. STABILITY AND REACTIVITY

Reactivity

Highly reactive with oxidizing agents. Reactive with Potassium + ammonium nitrate, potassium chlorate, potassium nitrate, potassium nitrite, sodium hypochlorite, sodium/potassium alloy + ammonium nitrate..

A mixture of ammonium sulfate and potassium chlorate decomposes with incandescence when heated. When a little ammonium sulfate is added to fused potassium nitrite, a vigorous reaction occurs attended by flame

If accidentally mixed with oxidizers like potassium chlorate, potassium nitrate or potassium nitrite, there is an explosion. A mixture of ammonium sulfate and ammonium nitrate can easily be exploded by potassium or sodium-potassium alloy.

Reacts with strong bases

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Stable at normal conditions.

Incompatible Materials: Strong oxidizing agents
Strong bases

Hazardous decomposition products: When heated to decomposition it emits highly toxic fumes. Sulfur oxides. Nitrogen oxides (NOx). Ammonia.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Inhalation. Ingestion.

Acute Toxicity

Component Information

Ammonium Sulfate

CAS No 7783-20-2

LD50/oral/rat = 2840 mg/kg Oral LD50 Rat; 3000-4000 mg/kg

LD50/oral/mouse = 640 mg/kg

LD50/dermal/rabbit = No information available

LD50/dermal/rat = > 2000 mg/kg Dermal LD50

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
Value - Acute Tox = 2840 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 640 mg/kg

LD50/dermal/rabbit
Value - Acute Tox = No information available

LD50/dermal/rat
VALUE - Acute Tox Dermal = >2000 mg/kg

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:	Causes skin irritation.
Eye Contact:	Causes eye irritation.
Inhalation	May cause respiratory tract irritation.
Ingestion	When ingested, its osmolarity can draw water from the body into the bowel, acting as a laxative. However, if enough is absorbed systemically it may produce Ammonia poisoning. Symptoms may include gastrointestinal (digestive) tract irritation with nausea, vomiting, hypermotility, diarrhea. May also affect eyes (Mydriasis), behavior/central nervous system (somnia, tremor, convulsions, muscle contraction or spasticity), and respiratory system (respiratory stimulation, dyspnea). Also, with ingestion of large doses of Ammonium Sulfate arises the possibility of sufficient absorption to produce diuresis, an excessive discharge of urine, and kidney damage (renal tubular disorder, abnormal renal function).
Aspiration hazard	No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	One Russian occupational standard study discussed chronic exposure effects which may include cardiac contraction, neurotoxicity, and hypertension. This has not been confirmed in other ammonium sulfate exposed workers.
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Sensitization:	No information available.
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Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Ammonium Sulfate	7783-20-2	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Ammonium Sulfate - 7783-20-2

Fish

250 mg/L LC50 Brachydanio rerio 96 h 1 480 mg/L LC50 Brachydanio rerio 96 h flow-through 1 420 mg/L LC50 Brachydanio rerio 96 h semi-static 1 18 mg/L LC50 Cyprinus carpio 96 h 1 32.2 - 41.9 mg/L LC50 Oncorhynchus mykiss 96 h flow-through 1 5.2 - 8.2 mg/L LC50 Oncorhynchus mykiss 96 h static 1 100 mg/L LC50 Pimephales promelas 96 h 1 123 - 128 mg/L LC50 Poecilia reticulata 96 h semi-static 1 126 mg/L LC50 Poecilia reticulata 96 h 1 460 - 1000 mg/L LC50 Leuciscus idus 96 h static 1

Crustacea

14 mg/L LC50 Daphnia magna 48 h 423 mg/L EC50 Daphnia magna 24 h

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility in soil No information available

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Ammonium Sulfate	7783-20-2	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class No information available
Subsidiary Class No information available
Packing group: No information available
Emergency Response Guide Number No information available
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions No Information available
Symbol(s): No information available
Description: No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant No Information available
Description: No information available

ADR

UN Number Not regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Packing group No information available
Subsidiary Risk: No information available

IMDG

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant No information available

RID

UN Number Not Regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: No information available
Packing group No information available

ICAO (air)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class No information available
Subsidiary Risk: No information available
Packing Group: No information available

IATA

UN Number Not Regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: No information available
Packing group No information available
Precautionary Statements - Response No information available
Special Provisions No information available

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Ammonium Sulfate	7783-20-2	PresentACTIVE	Present KE-01743	Present	Present (1)-400	Present	Present	Present 231-984-1

U.S. Regulations*Ammonium Sulfate*

Massachusetts RTK: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List Present
FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 184.1143
FDA - 21 CFR - Total Food Additives 177.1200, 184.1143, 73.85
- List Sourced from EAFUS

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Ammonium Sulfate	7783-20-2	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Ammonium Sulfate	7783-20-2	None	None	None	Aqueous Ammonia from water dissociable ammonium salts	1.0% de minimus concentration

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Ammonium Sulfate	7783-20-2	Not Applicable	Not Applicable

Canada

WHIMIS 2015 - GHS Classifications

WHIMIS 2015 Hazard Classification Information: Not a dangerous product according to HPR classification criteria.

Component Ammonium Sulfate 7783-20-2 (100)	WHIMIS 2015 Hazard Classification Not a dangerous product according to HPR classification criteria
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Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Ammonium Sulfate	7783-20-2	Present	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Ammonium Sulfate	7783-20-2	Not listed

Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Ammonium Sulfate	7783-20-2	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Ammonium Sulfate	7783-20-2	

EU - CLP (1272/2008)

R-phrase(s)

not determined (not applicable)

S -phrase(s)

none

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Ammonium Sulfate	7783-20-2		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

None

16. OTHER INFORMATION

Preparation Date: 05/19/2015
Revision date 4/8/2019
Prepared by: Sonia Owen

Disclaimer: All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet