

SAFETY DATA SHEET
TersOx™ Nutrients Ammonium Sulfate



Creation Date: 6/4/2023
Revision Date: 6/4/2023
Version 1.0
SDS # 16C

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product Name: TersOx™ Nutrients Ammonium Sulfate

Synonyms: Ammonium Sulphate; Diammonium Sulfate; Granular Ammonium Sulfate; Aqua Aide™ Crystal, FCC Ammonium Sulfate, Purified Ammonium Sulfate, Reagent Ammonium sulfate, Technical Ammonium Sulfate

1.2 Recommended use of the chemical and restrictions on use

Recommended Use: Remediation of contaminated groundwater and soils.
Restrictions on Use: Use as recommended by the label

1.3 Details of the supplier and of the safety data sheet

Supplier Tersus Environmental, LLC
 1116 Colonial Club Rd
 Wake Forest, NC 27587
 Phone: +1-919-453-5577
 Email: info@tersusenv.com

1.4 Emergency telephone number

For leak, fire, spill or accident emergencies, call:

+1-919-453-5577 (Tersus Office Hours, 8:00 AM to 5:00 PM Eastern)
+1-800-424-9300 (Chemtrec USA 24 Hour Service – Emergency Only)

2. HAZARD IDENTIFICATION

2.1 Relevant identified uses of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Short-term (acute) aquatic hazard (Category 3), H402
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label element, including precautionary statements

Pictogram	none
Signal Word	none
Hazardous statement(s) H402	Harmful to aquatic life
Precautionary statement(s) P273 P501	Avoid release to the environment Dispose of contents/ container to an approved waste disposal

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Chemical Formula**

Substance

Synonyms Ammonium sulfate

Formula H₈N₂O₄S
Molecular weight 132.14 g/mol
CAS-no. 7783-20-2
EC-No. 231-984-1

3.2 Hazardous components

Chemical Name	Concentration (%)	CAS Number
Ammonium Sulfate	≤100	7783-20-2

For the full text of the H-Statements mentioned in this Section, see Section 16.

Synonyms are provided in Section 1.

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

4.1 General Information Check the vital functions. If unconscious place in recovery position and seek medical advice. In case of respiratory arrest, administer artificial respiration. If cardiac arrest, perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Take the victim to a doctor if irritation persists.

Remove affected person from source of contamination.

4.1.1 Eye Contact Product is a severe eye irritant. Direct contact with eyes must be avoided. In case of contact with eyes, flush eyes with low pressure water for at least 15 minutes. If irritation persists, seek medical attention.

4.1.2 Skin Contact Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. If irritation persists, seek medical attention.

4.1.3 Inhalation Remove person from source of exposure to fresh air. If breathing is difficult, administer oxygen. If not breathing, start CPR. Get medical attention immediately.

4.1.4 Ingestion If fully conscious, drink two glasses of water. DO NOT induce vomiting. Get medical attention.

4.2 Important symptoms and effects (acute and delayed)

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention.

5. FIRE-FIGHTING MEASURES

5.1 Suitable Extinguishing Media

For fires in area, use appropriate extinguishing media.

Unsuitable Extinguishing Media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Specific Hazards Arising from the Chemical or Mixture

In a fire, dried ammonium sulfate can decompose at temperatures above 4,550°F (2,350°C) and may release ammonia and sulfur oxides which are toxic and may be flammable.

Nitrogen oxides (NO_x)

Sulfur oxides.

Not combustible.

5.3 Special Fire Fighting Procedures

Wear full protective firefighting clothing including NIOSH approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products.

5.4 Further Information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

In the event of a spill, clear unnecessary personnel from spill area. If direct contact with spilled material is likely, use personal protective equipment recommended in Section 8.

6.2 Environmental Precautions

Do not let product enter drains.

6.3 Methods for Containment and Clean Up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

Sweep up spilled material and collect for reuse or disposal. Dispose of material in accordance with local, state, province, and federal regulations. DO NOT flush material with water.

6.4 Reference to other sections

For disposal, refer to section 13.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

See section 2.2. Avoid creating dust. Adequately ventilate when handling this product. Provide eyewash capability. Contain with applicable regulations. Avoid contact with eyes. Avoid inhalation of vapors and spray/mist. Remove contaminated clothing immediately. Clean contaminated objects and areas thoroughly observing environmental regulations. Keep away from sources of ignition – No smoking. Handle in accordance with good industrial hygiene and safety procedures. Discharge into the environment must be avoided. Keep container tightly closed. Either local exhaust or general room ventilation is usually required. Do not eat, drink, take medication or smoke when direct contact is possible. Always thoroughly wash hands after leaving a work area where contact is possible or has occurred.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety procedures. Use good personal hygiene practices.

7.2 Conditions for Safe Storage and Incompatibilities

Tightly Closed. Dry.
 Storage class: (TRGS 510): 13: Non-Combustible Solids.
 Keep containers closed and contents protected from dust, dirt, and moisture. Have containers properly labeled for contents.
 Temperature for Storage: Preferred storage temperature range is 4°C-43°C (40°F-90°F).
 Ventilation: Local ventilation and dust collection
 Personal Protection: If direct contact with material is likely use personal protective equipment.

7.3 Specific End Use

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated.

8. EXPOSRE CONTROL / PERSONAL PROTECTION

8.1 Control Parameters

Exposure guidelines, ingredients with workplace control parameters.

Name	CAS No	PEL (OSHA)	TLV (ACGIH)	NIOSH TLV	NIOSH IDLH
Ammonium soluble salts (nuisance dust)	7783-20-2	TWA: 15 mg/m3 {5}* STEL: none est.	TWA: 10mg/m ³ {3}* STEL: none est.	TWA: none est. STEL: none est.	none est.

* Specific limits not set for these chemicals. Limits are shown for Particles Not Otherwise Regulated (PNOR) or Particles Not Otherwise Classified (PNOC). First number is for total dust, second number {#} is for respirable dust.

8.2 Exposure Control

Appropriate Engineering Controls

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients. Do not allow uncontrolled discharge of product into the environment.

Face Protection

The following protection should be worn: Safety glasses with shields,

chemical splash goggles or face shield. Have appropriate eye wash and safety shower stations available in the work area.

Respiratory Protection

Local ventilation and dust collection is typically used. Under normal conditions respiratory protective equipment is not needed. If work requires direct exposure to product dust, use appropriate, NIOSH approved respiratory protection. Consult engineers if necessary.

Hand Protection

Gloves that are made up of either: neoprene, vinyl, or rubber / butyl rubber should always be worn even when skin contact isn't highly possible. These gloves should also be chemical-resistant, and impervious gloves that comply with any approved standard. PVC gloves should be worn specifically if a risk assessment indicates skin contact is highly possible. And, PVA gloves, under no circumstances, should ever be worn.

Body Protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene Measures

Wash promptly if skin becomes contaminated. Wash hands at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: crystalline Color: Colorless
b) Odor	No odor
c) Odor threshold	Does Not Apply
d) pH	5 – 6 at 132 g/L at 25°C (77°F)
e) Melting point / Freezing Point	Melting point/range: > 280°C (> 536°F)
f) Initial Boiling point and boiling point range	Does Not Apply
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid; gas)	Not Flammable
j) Upper / lower flammability or explosive limits	No data available
k) Vapor pressure	< 0.1 hPa at 25°C (77°F)
l) Vapor density	Does Not Apply
m) Relative density (bulk density)	66-69 lbs./ft ³
n) Water solubility	767 g/L at 25°C (77°F)
o) Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p) Auto-ignition temperature	Information Not Available

11. TOXICOLOGICAL INFORMATION**11.1 Acute Toxicity****Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Ammonium sulfate (7783-20-2)

Oral LD50 Rat male and female: >2,000 mg/kg

(OECD Test Guideline 434)

No data available

HEALTH EFFECTS**Inhalation - Acute Exposure**

Inhalation may cause slight irritation of mucous membranes.

Maximization test – Guinea pig

Result: negative

(US-EPA)

Inhalation - Chronic Exposure

Repeated or prolonged exposure may cause irritation of the mucous membranes.

Skin Contact - Acute Exposure

May cause slight irritation.

Skin - Rabbit

Result: No skin irritation - 20 h

Remarks: (ECHA)

Skin Contact - Chronic Exposure

May cause irritation.

Eye Contact - Acute Exposure

May cause irritation, pain and tearing.

Eyes - Rabbit

Result: No eye irritation

Remarks: (ECHA)

Eye Contact - Chronic Exposure

May cause irritation, pain and tearing.

Ingestion - Acute Exposure

May cause irritation of the mouth, throat, gastrointestinal tract. May cause salivation, pain, nausea, vomiting, diarrhea.

Ingestion - Chronic Exposure

No data available.

Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Human lymphocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal

Remarks: (ECHA)

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 256 mg/kg RTECS: BS4500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhea. Systemic effect: after the uptake of very large quantities: drop in blood pressure,

collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, hemolysis.

Handle in accordance with good industrial hygiene and safety practice.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 53 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	Static test EC50 - <i>Ceriodaphnia</i> (water flea) - 121.7 mg/l - 48 h (US-EPA)
Toxicity to algae	static test ErC50 - <i>Chlorella vulgaris</i> (Fresh water algae) - 2,700 mg/l - 18 Days
Toxicity to Bacteria	static test EC50 - activated sludge - 1,618 mg/l - 30 min (OECD Test Guideline 209)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Biological effects: Fertilizing effect possible.
Discharge into the environment must be avoided.

13. DISPOSAL CONSIDERATIONS

<u>13.1 Waste Disposal Methods</u>	Dispose according to federal, state, and local laws. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Authority. Waste is suitable for incineration.
<u>RCRA Hazardous Waste</u>	Not listed.
<u>Neutralization</u>	No neutralization required.

14. TRANSPORTATION INFORMATION

<u>14.1 UN Number</u>	Mixture not classified as Hazardous according to Regulation (EC) 1272/2008.
<u>14.2 UN Proper Shipping Name</u>	N/A
<u>14.3 Transport Hazard Class</u>	N/A
<u>14.4 Packing Group (if applicable)</u>	N/A
<u>14.5 Environmental Hazards</u>	N/A
<u>14.6 Special Precautions for User</u>	N/A
<u>14.7 Transport in Bulk According to Annex II of the MARPOL 73/78 and the IBC Code</u>	N/A
<u>14.8 DOT Proper Shipping Name</u>	Chemicals not otherwise indexed (NOI) non-hazardous.

15. REGULATORY INFORMATION

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ

SARA 313 Toxic Chemical Listing

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ammonium Sulfate	Cas-no. 7783-20-2	Revision date: 1993/04/24
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SARA 311/312 Categories:

No SARA Hazards

Massachusetts Right To Know Components

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No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Ammonium Sulfate	Cas-no. 7783-20-2	Revision date: 1993/04/24
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New Jersey Right To Know Components

Ammonium Sulfate	Cas-no. 7783-20-2	Revision date: 1993/04/24
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RCRA Hazardous Waste: Not Listed.

CERCLA Hazardous Substance: No

CERCLA Reportable Quantity (RQ): NA

SARA Extremely Hazardous Substance (EHS): Not listed

OSHA Air (29CFR 1910.10000, Table Z-1, Z-1A): Not listed

OSHA Special Regulated Substance (29CFR 1910): Not listed

California Prop 65 Chemical: No

United States TSCA Section Inventory Status: Product exempt or listed on the TSCA Inventory.

State Regulations: State specific regulations have not been determined by GAC Chemical Corporation. Consult engineers if necessary.

16. OTHER INFORMATION

NSF/ANSI 60 Drinking Water Treatment Chemicals:

Maximum use 25mg/L

HMIS Rating:

Health: 1

Flammability: 0

Reactivity: 0

NFPA Rating:

Health: 1

Fire: 0

Reactivity: 0

Special: NA

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End of Safety Data Sheet