SAFETY DATA SHEET
Nutrisulfate® BioBoost™

Created: 7/25/2025
Version 1.0
SDS # 18E

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: Nutrisulfate® BioBoost™

Synonyms: None

Product Form: Mixture

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.

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

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 24 Hour Service – Emergency Only)

2. HAZARD IDENTIFICATION

GHS Classification:

- **Oxidizing solids – Category 2**

Label Elements (per OSHA HCS 29 CFR 1910.1200):

Pictogram:

Signal Word: Warning

Hazard Statements:

- H272 – *May intensify fire; oxidizer*

Precautionary Statements:

- **Prevention:**
  - P210 – Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
  - P220 – Keep/Store away from clothing and other combustible materials.
  - P221 – Take any precaution to avoid mixing with combustibles.
- **Response:**
  - P370+P378 – In case of fire: Use water spray to extinguish.
- **Storage:**
  - P420 – Store separately from combustible materials.
- **Disposal:**
  - P501 – Dispose of contents/container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified (HNOC):

- None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formula Substance

Hazardous Components

This product is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.

Components

Chemical Name	CAS Number	Concentration (% by wt.)	Classification
Magnesium sulfate, heptahydrate ($MgSO_4 \cdot 7H_2O$)	10034-99-8	50 to 70	Not hazardous
Ammonium Sulfate ($(NH_4)_2SO_4$)	7783-20-2	20 to 30	Eye Irrit. 2A, Skin Irrit. 2
Sodium Nitrate ($NaNO_3$)	7631-99-4	7.5 to 12.5	Ox. Sol. 3, Eye Irrit. 2A
Dipotassium Phosphate (K_2HPO_4)	7758-11-4	2.5 to 7.5	Not classified

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Synonyms are provided in Section 1.
Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

General Information

Check the vital functions. If unconscious place in recovery position and seek medical advice. In case of respiratory arrest, administer artificial respiration. 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 victim to a doctor if irritation persists.

Remove affected person from source of contamination.

Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Seek medical attention if irritation persists.
Skin Contact	Wash with soap and water. Remove contaminated clothing and wash before reuse. Get medical attention if irritation occurs.
Inhalation	Move person to fresh air. If symptoms persist, seek medical attention. Get medical attention.
Ingestion	Rinse mouth. Do not induce vomiting. Seek medical advice if symptoms occur.
Most important symptoms and effects, both acute and delayed	May cause mild irritation to eyes, skin, or respiratory tract.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media	Water spray, fog, or foam.
Unsuitable Extinguishing Media	Do not use water jet or dry chemical extinguishers directly on product.
Specific Hazards Arising from the chemical or mixture	Product is an oxidizer and may intensify fire. May emit toxic fumes under fire conditions.
Special Fire Fighting Procedures	Wear self-contained breathing apparatus and full protective gear. Avoid breathing combustion products.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with skin, eyes, and clothing. Avoid inhalation of dust.
Protective Equipment	Use appropriate personal protective equipment (see Section 8).
First Aid:	In case of contact with skin, wash with soap and water. If symptoms occur, seek medical attention. In case of contact with eyes, rinse with plenty of water for at least 15 minutes and see an eye specialist if irritation persists. In case of inhalation, remove to fresh air. In case of ingestion, drink water. If symptoms occur, seek medical assistance.
Emergency Procedures	Evacuate area if necessary. Eliminate ignition sources.
Methods for Containment and Clean Up	Sweep or scoop up material into clean, dry containers for disposal. Avoid generating dust. Wash spill area with water.

7. HANDLING AND STORAGE

Precautions for Safe handling	Avoid contact with skin and eyes. Do not breathe dust. Keep away from heat and combustible materials. Handle in accordance with good industrial hygiene practices.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety

	procedures. Use good personal hygiene practices.
Conditions for Safe Storage, Including Incompatibilities	Store in a cool, dry, well-ventilated area away from incompatible materials (e.g., combustibles, reducing agents). Keep container tightly closed.
Storage Class	Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials.

8. EXPOSRE CONTROL / PERSONAL PROTECTION

Control parameters
Exposure guidelines, ingredients with workplace control parameters.

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Exposure Control
Protective equipment

Appropriate engineering controls	At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.
Eye/face protection	The following protection should be worn: Safety glasses with shields, chemical splash goggles or face shield.
Respiratory protection	Not needed
Hand protection	Neoprene. Vinyl, Rubber (natural, latex), Butyl rubber. Wear protective gloves made of the following material: Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. Polyvinyl chloride (PVC). Manufactured/tested in accordance with EN 374, Avoid the following conditions: Polyvinyl alcohol (PVA).
Other skin and 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

Information on basic physical and chemical properties

Appearance	White to transparent colorless solid
Odor	Almost odorless
Odor threshold	Information Not Available
pH	Approx. 6-7 (1 % solution)
Melting point /Freezing Point	150℃

Initial Boiling point and boiling point range	200℃
Flash Point	Unknown
Evaporation rate	Unknown
Flammability (solid; gas)	Unknown
Upper/lower flammability or explosive limits	Unknown
Vapor pressure	Unknown
Vapor density	Unknown
Specific Gravity	1.76g/cm
Bulk density	60-70 lb./ft3
Solubility (ies)	71 g / 100 cc (20℃), 91 g / 100 cc (40℃)
Partition coefficient: n-octanol/water	Unknown
Initial Boiling point and boiling point range	Unknown
Auto-ignition temperature	Unknown
Decomposition temperature	Unknown
Viscosity	Unknown

10. STABILITY AND REACTIVITY

10.1 Reactivity:
This product is **oxidizing**. It may accelerate the combustion of other materials.

10.2 Chemical Stability:
Stable under normal ambient conditions of temperature and pressure.

10.3 Possibility of Hazardous Reactions:

- May react with **reducing agents**, **organic materials**, **combustible substances**, or **strong acids**.
- Contact with incompatible materials may result in fire or explosion.

10.4 Conditions to Avoid:

- Excessive heat, sparks, open flames.
- Contamination with incompatible substances.
- Humid or wet storage conditions may affect product stability and increase the risk of decomposition.

10.5 Incompatible Materials:

- **Reducing agents** (e.g., powdered metals, hydrides).
- **Combustible materials** (e.g., paper, wood, oil, or organic solvents).
- **Acids**, which may release toxic gases.
- **Chlorinated compounds** or strong alkalis.

10.6 Hazardous Decomposition Products:

- Thermal decomposition may release toxic gases, including **nitrogen oxides (NOx)**, **sulfur oxides (SOx)**, **ammonia**, and **phosphorus oxides**.
- Incomplete combustion may generate carbon monoxide and other hazardous byproducts.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Likely Routes of Exposure:

- **Inhalation:** Dust may cause irritation to the respiratory tract.
- **Skin Contact:** May cause mild irritation upon prolonged or repeated contact.
- **Eye Contact:** May cause mechanical irritation, redness, or watering.
- **Ingestion:** Ingestion of large quantities may cause gastrointestinal discomfort, including nausea, vomiting, and diarrhea.

11.2 Symptoms Related to the Physical, Chemical, and Toxicological Characteristics:

- Irritation of eyes, skin, and respiratory tract.
- Ingestion may cause abdominal pain, vomiting, or diarrhea due to the nitrate or sulfate content.

11.3 Delayed and Immediate Effects and Also Chronic Effects from Short- and Long-Term Exposure:

- **Sodium Nitrate:** High doses may cause methemoglobinemia, especially in infants. Long-term exposure to high levels may affect blood and kidneys.
- **Ammonium Sulfate:** Prolonged exposure may result in respiratory irritation.
- **Magnesium Sulfate Heptahydrate:** Generally recognized as safe in low doses; may have laxative effects if ingested in quantity.
- **Monopotassium Phosphate:** Low toxicity; ingestion of large amounts may lead to gastrointestinal discomfort.

11.4 Numerical Measures of Toxicity (Acute Toxicity Estimates):

- **Sodium Nitrate** (oral, rat): LD_{50} ≈ 1267 mg/kg
- **Ammonium Sulfate** (oral, rat): LD_{50} ≈ 2840 mg/kg
- **Magnesium Sulfate Heptahydrate** (oral, rat): LD_{50} > 5000 mg/kg
- **Monopotassium Phosphate** (oral, rat): LD_{50} > 5000 mg/kg

11.5 Carcinogenicity:

- None of the ingredients are listed as carcinogens by IARC, NTP, OSHA, or ACGIH.

11.6 Other Relevant Information:

- No known mutagenic, teratogenic, or reproductive toxicity effects for this mixture under normal handling and use.

12. ECOLOGICAL INFORMATION

12.1 Toxicity:
This product contains components with varying degrees of ecological concern.

- **Sodium Nitrate**: Harmful to aquatic life with long-lasting effects. May contribute to eutrophication in surface waters.
- **Ammonium Sulfate**: Harmful to aquatic organisms at high concentrations.

- **Magnesium Sulfate Heptahydrate**: Not classified as hazardous to the environment. Readily soluble in water and occurs naturally. Acute aquatic toxicity is low.
- **Monopotassium Phosphate**: May contribute nutrients to water bodies and promote eutrophication.

12.2 Persistence and Degradability:

- **Sodium Nitrate** and **Ammonium Sulfate**: Inorganic salts; persist in the environment and may affect nutrient cycles.
- **Magnesium Sulfate Heptahydrate**: Dissociates into naturally occurring magnesium and sulfate ions; persistent but not harmful.
- **Monopotassium Phosphate**: Persistent as a phosphate salt but subject to uptake by plants and microorganisms.

12.3 Bioaccumulative Potential:

- All major components are inorganic and **not expected to bioaccumulate**.

12.4 Mobility in Soil:

- The mixture is highly water-soluble and **may leach into groundwater** if released to the environment.

12.5 Other Adverse Effects:

- While no significant environmental hazards are anticipated under normal use, improper release to surface waters may lead to nutrient enrichment (eutrophication).
- **Magnesium Sulfate Heptahydrate** is widely used in agriculture and medicine; no significant ecological risk is expected.

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods:

- **Product Waste:**
  Dispose of in accordance with local, regional, national, and international regulations. Do not dispose of into the environment, drains, or watercourses. As an oxidizing solid, Nutrisulfate® BioBoost may pose a fire hazard if mixed with combustible waste.
- **Contaminated Packaging:**
  Empty containers should be thoroughly rinsed and disposed of in compliance with applicable regulations. Do not reuse containers unless properly cleaned and approved for reuse.
- **Disposal Recommendations:**
  Incineration or chemical waste disposal by a licensed disposal company is recommended. Avoid mixing with flammable or combustible waste streams. Follow guidance from local environmental authorities.

RCRA Hazardous Waste Code (U.S.):

- Not specifically listed, but waste material may be regulated due to oxidizing properties.

Additional Notes:

- Always consult local, state, and federal waste regulations to ensure proper disposal.
- Handle unused material and waste according to the precautions outlined in Sections 7 and 8.

14. TRANSPORTATION INFORMATION

U.S. (D.O.T.)

- **UN Number:** UN1479
- **Proper Shipping Name:** Oxidizing Solid, N.O.S. (contains Sodium Nitrate)
- **Transport Hazard Class:** 5.1 (Oxidizing Substances)
- **Packing Group:** II
- **Labels:** Oxidizer (5.1)

Special Precautions for User:

- Keep away from heat, sparks, open flames, and combustible materials.
- Transport in accordance with applicable local, state, and federal regulations.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

- Not applicable

Additional Information:

- Based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, **Test O.1 – Test for Oxidizing Solids**, this mixture is classified as an **Oxidizing Solid, Division 5.1, Packing Group II** due to its burn rate.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

- **OSHA Hazard Communication Standard (29 CFR 1910.1200):**
  Classified as a hazardous chemical under OSHA HCS.
  - Hazard Class: Oxidizing Solid, Category 2
  - Signal Word: *Warning*
  - Hazard Statements: May intensify fire; oxidizer
- **SARA Title III (EPCRA):**
  - **Section 302 (Extremely Hazardous Substances):** Not listed
  - **Section 311/312 (Hazard Categories):**
    - Fire Hazard: Yes
    - Reactive Hazard: No
    - Immediate (Acute) Health Hazard: No
    - Delayed (Chronic) Health Hazard: No
  - **Section 313 (Toxic Chemicals):**
    - Sodium nitrate may be subject to reporting under certain conditions depending on quantity and use.
- **CERCLA:**
  - Not classified as a CERCLA hazardous substance.

U.S. State Regulations:

- **California Proposition 65:**
  - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

International Regulations:

- **Canadian WHMIS Classification:**
  - Oxidizing Material – Class C
- **DSL/NDSL (Canada):**
  - Components are listed or exempt.
- **Inventory Status:**
  - All components are listed on the TSCA Inventory or exempt.

16. OTHER INFORMATION

Components not precisely identified are proprietary or non-hazardous.

Disclaimer:
The information provided in this Safety Data Sheet (SDS) is believed to be accurate and reliable as of the issue date. However, Tersus Environmental, LLC makes no warranties, express or implied, regarding the completeness or accuracy of the data or any recommendations. It is the responsibility of each recipient to review this SDS thoroughly and consult appropriate technical or regulatory resources as needed to understand the hazards and ensure safe handling and use of the product.

Regulations may vary by location and are subject to change. Users are responsible for compliance with all applicable federal, state, provincial, and local laws and regulations. Because the conditions of use, handling, and application are beyond our control, Tersus Environmental, LLC assumes no liability for any loss or damage resulting from the use of this product. It is the user's responsibility to determine the suitability and safety of the product for its intended use, and to ensure that such use does not infringe upon any intellectual property rights.

This SDS applies only to the product in its original form as shipped. Recommendations provided—whether verbal, written, or inferred from test data—are based on current knowledge at the time of issuance and may be revised as new information becomes available. However, circumstances beyond our control may affect the validity of such recommendations. Users must independently verify the product's suitability for their specific process or application.

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End of Safety Data Sheet