

SAFETY DATA SHEET
TersOx™ Nutrients-QR



Revision date: 2019-06-14
Version 1.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: TersOx™ Nutrients-QR

Synonyms: Water soluble nitrogen and phosphorus nutrient salt supplement for microbial process

Product Form: Mixture

Recommended use of the chemical and restrictions on use

Recommended Use: For use in stimulating biological activity in soils and sludges
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
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Wake Forest, NC 27587
Phone: +1-919-453-5577
Email: info@tersusenv.com

Contact Person: David F. Alden
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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)
- +1-703-527-3887 (Chemtrec Outside United States 24 Hour Service – Emergency Only)
- +1-919-638-7892 Gary M. Birk (Outside office hours)

2. HAZARD IDENTIFICATION

Relevant identified uses of the substance or mixture

Hazard Classification	Category	H-statement
Skin irritant	2	H315
Eye irritant	2A	H319
Acute toxicity – Inhalation	4	H332
Specific Target Organ Toxicity – Repeated	2	H371
Mutagenicity	2	H341

Label elements**Hazard Pictograms****Hazard Statements**

Causes skin irritation (H315)
 Causes serious eye irritation (H319)
 Harmful if inhaled (H332)
 May cause damage to lungs through prolonged or repeated exposure to inhalation of Urea: Known to cause emphysema (H371)
 Urea – suspected of causing genetic defects (H341)

Precautionary statements

P201 – Obtain special instructions before use.
 P202 – Do not handle until all safety precautions have been read and understood.
 P260 – Do not breathe dust.
 P264 – Wash thoroughly after handling.
 P270 – Do not eat, drink or smoke when using this product.
 P271 – Use only outdoors or in a well-ventilated area.
 P280 – Wear protective gloves, clothing, eye, and face protection.
 P302 + P352 – IF ON SKIN: Wash with soap and plenty of water.
 P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P311 + P313 – IF exposed or concerned: Call a POISON CENTER or doctor and get medical advice/attention.
 P312 – Call a POISON CENTER or doctor if you feel unwell.
 P332 + P313 – If skin irritation occurs: Get medical advice/attention.
 P337 + P313 – If eye irritation persists: Get medical advice/attention.
 P362 + P364 – Take off contaminated clothing and wash it before reuse.
 P405 – Store locked up.
 P501 – Dispose of contents/container in accordance with local, regional, and federal regulations.

Further information

Persons who have a compromised immune system or a history of severe allergic response should avoid contact and/or breathing dust or mist from product handling or manufacturing processes.

Other hazards

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formula

Mixture

Hazardous components

Chemical Name	Concentration (%)	CAS Number
Urea	<75	57-13-6
Diammonium Phosphate	<25	7783-28-0
Tricalcium Phosphate	<1	1306-06-5

Synonyms are provided in Section 1.

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

4. FIRST AID MEASURES

General Information	<p>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.</p> <p>Remove affected person from source of contamination.</p>
Eye Contact	<p>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.</p>
Skin Contact	<p>Product may cause slight irritation. Prolonged or repeated direct contact with skin may cause reddening, itching and inflammation. In case of contact with skin, wash skin with soap and water. Remove contaminated clothing and wash. If irritation persists, consult a physician.</p>
Inhalation	<p>May cause sensitization by inhalation in hypersensitive individuals, irritation of respiratory tract, or physical interference with breathing. Avoid inappropriate handling which may result in dust generation. If inhaled, remove from contaminated area to fresh air. Initiate CPR if victim has stopped breathing. Administer oxygen if victim has difficulty breathing. Report situation. Seek medical attention if allergic response or difficulty breathing is exhibited. No incidences of health effects from dust inhalation have been reported.</p>
Ingestion	<p>Ingestion of material may cause gastric disturbance including irritation, nausea, vomiting, and diarrhea. If swallowed, rinse mouth and throat with tap water. Consult a physician if symptoms exist.</p>
Most important symptoms and effects, both acute and delayed	<p>Most important symptoms/effects, acute and delayed: A single dose of 100 g has been reported to cause mild central nervous system depression, e.g. drowsiness and slow reflexes. Sensitization (shortness of breath, wheezing, and labored coughing) take individual to emergency room.</p>
Indication of any immediate medical attention and special treatment needed	<p>If exposed or concerned, get medical advice and attention.</p>

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	<p>Dry chemical, carbon dioxide, chemical foam or water (all common agents as appropriate to surrounding fire – this material burns with difficulty).</p>
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Specific Hazards Arising from the chemical or mixture

Avoid mixtures with strong acids (nitric or perchloric) which may create explosive mixture.

Special Fire Fighting Procedures

Irritating toxic substances may be emitted on thermal decomposition. Exposed firefighters should wear self-contained breathing apparatus and protective clothing.

Cool containers exposed to flames with water until well after the fire is out. Use water spray to reduce vapors. If risk of water pollution occurs, notify appropriate authorities. Avoid water in straight hose stream; will scatter and spread fire. Keep upwind. Do not inhale explosion and combustion gases. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Cool containers exposed to flames with water until well after the fire is out. Use water spray to reduce vapors. If risk of water pollution occurs, notify appropriate authorities. Avoid water in straight hose stream; will scatter and spread fire. Wear positive-pressure, self-contained breathing apparatus (SCBA) and chemical protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Provide enough ventilation. Advice for emergency responders: protective equipment see Section 8. Wear protective clothing as described in Section 8 of this safety data sheet. Do not smoke or use open fire or other sources of ignition. Contact with walking surface may result in formation of slippery film/falling hazard.

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.

Environmental Precautions

Do not discharge into drains, sewers or watercourses or onto the ground. Inform the relevant authorities if this occurs. Spilled product should be removed immediately to avoid formation of dust. Contain spill, sweep up avoiding airborne dust. Provide enough ventilation. Recover product for reuse if possible. Avoid contamination of waterways and (if large quantity) vegetation.

Methods for Containment and Clean Up

Spilled product should be removed immediately to avoid formation of dust. Contain spill, sweep up avoiding airborne dust. Provide enough ventilation. Recover product for reuse if possible. Avoid contamination of waterways and (if large quantity) vegetation. Absorb in non-combustible material, vermiculite, dry sand or earth and place into containers.

7. HANDLING AND STORAGE

Precautions for safe handling

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.
Hygiene measures	Handle in accordance with good industrial hygiene and safety procedures. Use good personal hygiene practices.
Conditions for safe storage, including any incompatibilities	Avoid mixtures with strong acids (nitric or perchloric) which may create explosive mixture.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Control parameters

Exposure guidelines, ingredients with workplace control parameters.

Name	CAS-No	TLV (ACGIH)	PEL (OSHA)
Urea	57-13-6	10mg/m ³ {3}*	15mg/m ³ {5}*
Diammonium phosphate	7783-28-0	10mg/m ³ {3}*	15mg/m ³ {5}*
Tricalcium phosphate	1306-06-5	10mg/m ³ {3}*	15mg/m ³ {5}*

* 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.

Exposure Control

Protective equipment



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.

Eye/face protection

The following protection should be worn: Safety glasses with shields, chemical splash goggles or face shield.

Respiratory protection

Dust mask or respirator for particle removal (NIOSH)

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 granular solid
Odor	Mild ammonia odor
Odor threshold	Information Not Available
pH	7 – 10 (10% sol)
Melting point /Freezing Point	130 °C
Initial Boiling point and boiling point range	Does Not Apply
Flash Point	Does Not Apply
Evaporation rate	Does Not Apply
Flammability (solid; gas)	Information Not Available
Upper/lower flammability or explosive limits	Does Not Apply
Vapor pressure	Low
Vapor density	Does Not Apply
Relative density	Information Not Available
Solubility (ies)	100g / 100mL in water
Partition coefficient: n-octanol/water	Does Not Apply
Initial Boiling point and boiling point range	Does Not Apply
Auto-ignition temperature	Information Not Available
Decomposition temperature	Information Not Available
Viscosity	Does Not Apply
Other Physical/Chemical Properties	Specific Gravity at 25°C – 1.3

10. STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions and use.
Chemical stability	Information not available
Possibility of hazardous reactions	Information not available
Conditions to avoid	Avoid mixtures with strong acids (nitric or perchloric) which may create explosive mixture, extreme heat.
Incompatible materials	Strong alkalis, active metals (aluminum, magnesium), ammonia, inorganic materials. Strong oxidizers, chlorine compounds.
Hazardous decomposition products	Information not available
Hazardous Polymerization	Information not available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Acute toxicity	(low) LD50 > 1000 mg/kg body weight
Skin Corrosion/Irritation	Dust may cause slight skin irritation, prolonged or repeated direct skin contact may cause reddening, itching and inflammation.
Serious Eye Damage/Irritation	Dust may cause severe irritation.
Respiratory or Skin Sensitization	Dust may cause irritation or allergy in susceptible individuals.

	May cause respiratory allergy in susceptible individuals: sensitization (shortness of breath, wheezing, and labored coughing) take individual to emergency room.
Ingestion	May cause severe gastric disturbances, sore throat.
Germ Cell Mutagenicity	Information Not Available
Carcinogenicity	Information Not Available
Reproductive Toxicity	Information Not Available
Specific Target Organ Toxicity – Single Exposure	Information Not Available
Specific Organ Toxicity – Repeated Exposure	Information Not Available
Aspiration Hazard	Information Not Available
General Remarks	Information Not Available

12. ECOLOGICAL INFORMATION

Chemical Fate Information

Product is readily biodegradable in wastewater treatment systems.

Biodegradability

Readily degradable.

Excess product in waterways may encourage eutrophication.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

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.

14. TRANSPORTATION INFORMATION

UN Number	Mixture not classified as Hazardous according to Regulation (EC) 1272/2008.
UN Proper Shipping Name	n/a
Transport Hazard Class	n/a
Packing Group (if applicable)	n/a
Environmental Hazards	n/a
Special Precautions for User	n/a
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code	n/a
DOT Proper Shipping Name	Chemicals not otherwise indexed (NOI) non-hazardous.

15. REGULATORY INFORMATION

All ingredients used are listed on the USEPA TSCA Inventory list.

Ingredients are not listed in: Reportable Quantity (49CFR 172.101), SARA Title III Section 302/313 (Extremely Hazardous Substance List/ Toxic Chemicals), RCRA Hazardous Waste, California Proposition 65, State Right to Know Laws (Connecticut, Florida, Illinois, Louisiana, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island)

16. OTHER INFORMATION

Mixture classified as not dangerous according to Regulation (EC) 1272/2008.

Observe employment restrictions for people.

Product is not listed with IARC, NTP, ACGIH or OSHA as a carcinogen.

Components not precisely identified are proprietary or non-hazardous. All chemical ingredients appear on the EPA TSCA inventory.

The information contained in this Safety Data Sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendations or suggestions are made without warranty or guarantee. Since the conditions of use are beyond the control of our company, it is the responsibility of the user to determine the conditions of safe use of this product. The information in this sheet does not represent analytical specifications; for this information contact Tersus Environmental.

Disclaimer: This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. All recommendations for the use of our products, whether given by us, orally or to be implied from data or lab tests results by us, are based on the current state of our knowledge at the time those recommendations are made. When additional information is obtained, these recommendations may be updated. They may also be influenced by circumstances outside our control. Notwithstanding, such recommendation the user is responsible that the product as supplied by us is suitable to the process or purpose he intends to use it. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of this product. Since we cannot control the application, use or processing of the product, we do not accept responsibility. Therefore, the user should assure that the intended use of the product will not infringe in any party's intellectual property right.



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End of Safety Data Sheet