

**SAFETY DATA SHEET**

Grizzly Terrain


Date Prepared: 1/5/2015

Replaces: All Previous

**SECTION 1. IDENTIFICATION**

Product Name: Grizzly Terrain  
 Synonyms: Ferric Sulfate Solution  
 Use: Agricultural, Liquid Micronutrient Fertilizer  
 Manufactured For: Geoponics Corp.  
 3415 Radio Road  
 Naples, FL 34105  
 Phone: 877-667-6330  
 Chemtrec (Emergency) Phone: 800-424-9300

**SECTION 2. HAZARDS IDENTIFICATION**

Pictogram	Signal Word	Hazard Class	Hazard Category	Hazard Statement
	<b>DANGER</b>	Skin Corrosion Eye Damage Corrosive to Metals	Cat 1	Causes severe skin burns and serious eye damage. May be Corrosive to Metals
<b>Precautionary Statements:</b>	<p><b>Prevention:</b> Do not breathe vapors, mists or sprays. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection, and face protection. Keep in original container.</p> <p><b>Response:</b> <u>If swallowed:</u> rinse mouth, Do NOT induce vomiting. Immediately call doctor.</p> <p><u>If on skin (or hair):</u> Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call doctor.</p> <p><u>If inhaled:</u> Remove person to fresh air and keep comfortable for breathing. Immediately call doctor.</p> <p><u>If in eyes:</u> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call doctor.</p> <p>Absorb spillage to prevent material damage.</p> <p><b>Storage:</b> Store locked up. Store in polyethylene or polypropylene containers (See Section 7 of SDS).</p> <p><b>Disposal:</b> Dispose of contents/containers in accordance with local/regional/national regulations (See Section 13 of SDS).</p>			

**SECTION 3. COMPOSITION**

Material	CAS #	EINECS #	%WT
Phosphoric Acid	7664-38-2	231-633-2	3%
Ferric Sulfate	10028-22-5	233-072-9	29%
Urea	57-13-6	200-315-5	Proprietary, Non-
Water	7732-18-5	231-791-2	Hazardous blend

See product label for guaranteed analysis.

<b>SECTION 4. FIRST AID MEASURES</b>	
<b>Ingestion:</b>	Rinse mouth. Do NOT induce vomiting. Drink large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Skin Contact:</b>	Immediately Take of immediately all contaminated clothing and rinse skin with water/shower. Wash contaminated clothing before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Seek prompt medical attention.
<b>Eye Contact:</b>	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing eyes during transport to hospital.
<b>Acute Exposure Symptoms:</b>	Harmful if swallowed or inhaled. Immediately seek medical attention. This product is corrosive to all tissues with which it comes in contact. Contact with skin does not normally cause immediate irritation but prolonged contact may result in redness, swelling, skin burns and severe damage. Inhalation of the vapor or mist can cause eye, nose, throat, and respiratory irritation or coughing. When ingested, it can produce nausea, vomiting, abdominal pain, diarrhea, acidosis and irritation or burns of the oropharyngeal mucosa, esophagus, and stomach.
<b>Chronic Exposure Symptoms:</b>	Signs and symptoms may include irritability, nausea or vomiting, and normocytic anemia. Chronic ingestion over-exposure of iron may cause liver dysfunction. Repeated high exposure may lead to iron build up in the body, causing nausea, vomiting, stomach pain constipation and black bowel movements.

<b>SECTION 5. FIRE FIGHTING MEASURES</b>	
<b>Extinguishing Media:</b>	This product is non-flammable. Use appropriate media for surrounding fire. Cool containers with water spray to avoid rupture due to thermal expansion.
<b>Specific Hazards:</b>	This product is an aqueous mixture and is not flammable. If material is exposed to prolonged heat in a fire, material may release oxides of carbon, sulfur, nitrogen, and iron. For safety, avoid water spray with full jet to prevent spread of product. Exposure to metals can produce highly flammable hydrogen gas.
<b>Protective Equipment and Precautions for Fire-Fighters:</b>	Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhaling combustion products. Fire run-off should be contained to prevent possible environmental damage.
<b>NFPA Rating:</b>	Health: 3, Fire: 0, Reactivity: 1

<b>SECTION 6. ACCIDENTAL RELEASE MEASURES</b>	
<b>Precautions:</b>	Corrosive liquid. Isolate area. Keep unnecessary personnel away. Avoid splashing or spraying. Do no touch or walk through spilled material.
<b>Protective Equipment:</b>	Impervious gloves (rubber, neoprene or nitrile), chemical resistant suit, Chemical splash-proof goggles, face shield. Chemical resistant apron and/or rubber boots may be needed. Use NIOSH approved respirator if vapors or mists exceed applicable concentration limits.
<b>Containment:</b>	Stop flow of material if safe to do so. Dike area with diatomaceous earth or sand and maximize recovery. Prevent spillage from entering drains or open bodies of water. Any release to the environment may be subject to reporting requirements.
<b>Clean Up:</b>	Pump into a suitable tank or absorb with diatomaceous earth or sand. Residue can be neutralized slowly with lime. Recover and dispose of residue. Sweep up and place into suitable containers for agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations (See Section 13 of SDS).

<b>SECTION 7. HANDLING AND STORAGE</b>	
<b>Precautions for safe handling:</b>	Open containers carefully. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Do not eat, drink or use tobacco products when handling this material. Apply product in open areas. Keep away from children and pets. Do not contaminate feed, seed or any water sources. Launder work clothes frequently and separate from other laundry. When diluting always pour product into water and not vice versa
<b>Conditions for safe storage:</b>	Store locked up. Store in a well-ventilated, cool, dry place, away from sources of intense heat, or where freezing is possible. Keep away from incompatible materials. Large storage tanks should have secondary containment and electrically grounded. Polyethylene and polypropylene are acceptable materials for storage containers. Reacts with metals producing highly flammable hydrogen gas. Tanks should be vented and painted white or in light heat-reflecting colors. Ensure that all pumps, valves, meters, gaskets, etc., are of compatible materials. Keep containers tightly closed when not in use. Do not let product go below 32°F. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
<b>Incompatibilities:</b>	Strong oxidants, strong bases, combustibles and reducing substances, metals.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION			
<b>Component Exposure Limits:</b>	Urea	Not Established	PEL, OSHA
		10 mg/m <sup>3</sup>	TWA, ACGIH
		Not Established	IDLH, NIOSH
		Not Established	REL, NIOSH
		Not Established	STEL, NIOSH
		Not Established	PEL, OSHA
	Phosphoric Acid H <sub>3</sub> PO <sub>4</sub>	1 mg/m <sup>3</sup>	PEL, OSHA
		3 mg/m <sup>3</sup>	STEL, OSHA
		1 mg/m <sup>3</sup>	TLV, ACGIH
		1,000 mg/m <sup>3</sup>	IDLH, NIOSH
		1 mg/m <sup>3</sup>	REL, NIOSH
		3 mg/m <sup>3</sup>	STEL, NIOSH
	Ferric Sulfate Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	1 mg/m <sup>3</sup>	PEL, OSHA (as Fe soluble salts)
		Not Established	STEL, OSHA
		1 mg/m <sup>3</sup>	TLV, ACGIH (as Fe soluble salts)
		Not Established	IDLH, NIOSH
		Not Established	REL, NIOSH
		Not Established	STEL, NIOSH
<b>Engineering Controls:</b>	Provide local exhaust ventilation and wash facilities. Eye wash stations and safety showers required.		
<b>Personal Protective Equipment:</b>	<p><u>Eyes:</u> Chemical splash-proof goggles and face shield</p> <p><u>Skin:</u> Impervious gloves (rubber, neoprene or nitrile), long sleeved clothing. Chemically resistant apron is recommended.</p> <p><u>Respiratory:</u> None required for ambient air concentrations (i.e. in the open under normal agronomic conditions) not exceeding occupational exposure limits. Respiratory protection may be required in the event of a spill in an enclosed area. Wear NIOSH approved respiratory protective equipment when vapor or mists may exist as well as a chemical suit.</p>		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES			
<b>Appearance:</b>	Clear, dark brown liquid		
<b>Odor:</b>	Odorless	<b>UEL / LEL:</b>	Not Applicable
<b>Odor Threshold:</b>	Not Available	<b>Vapor Pressure:</b>	Not Available
<b>pH:</b>	0.8 to 1.8	<b>Density:</b>	1.28 to 1.30 g/cm <sup>3</sup>
<b>Melting/Freezing Point:</b>	< 0°C (32°F)	<b>Solubility:</b>	Water
<b>Boiling Point:</b>	>100°C (212°F)	<b>Log<sub>ow</sub>:</b>	Not Available
<b>Flash Point:</b>	Not Applicable	<b>Auto Ignition Temp:</b>	Not Applicable
<b>Evaporation Rate:</b>	Similar to water	<b>Decomposition Temp:</b>	Not Available
<b>Flammability (Solid/Gas):</b>	Not Applicable	<b>Viscosity</b>	Not Available

SECTION 10. STABILITY AND REACTIVITY	
<b>Reactivity:</b>	Product is acidic.
<b>Chemical Stability:</b>	Stable under normal conditions. Reacts with most metals to form flammable hydrogen gas.
<b>Possibility of Hazardous Reactions:</b>	Hazardous polymerization will not occur.
<b>Conditions to avoid:</b>	High temperatures. Heating can evolve irritating and toxic sulfur oxides.
<b>Incompatible Materials:</b>	Strong oxidants, strong bases, combustibles and reducing substances, most metals.
<b>Hazardous Decomposition Products:</b>	Carbon dioxide, oxides of nitrogen, iron, and sulfur, ammonia

SECTION 11. TOXICOLOGICAL INFORMATION	
<b>Acute Toxicity:</b>	Urea: LD50 oral (rat): > 2000 mg/kg Ferric Sulfate LD50 oral (rat): >500 mg/kg (500 to 2000 mg/kg) Phosphoric Acid: LD50 oral (rat): 1530 mg/kg LD50 dermal (rabbit): 2740 mg/kg LC50 inhalation (rabbit): 1.689 mg/l 1 hr
<b>Likely Routes of Exposure:</b>	Inhalation of mist, eye, and skin contact.
<b>Symptoms and Signs of Exposure:</b>	<u>Eyes:</u> Contact causes severe irritation and tissue damage; Eye burns, watering eyes. <u>Skin:</u> Contact with skin does not normally cause immediate irritation. But prolonged contact may result in redness, swelling, skin burns and severe damage. <u>Ingestion:</u> Corrosive if swallowed. Burning, choking, nausea, vomiting, severe pain; Danger of perforation of esophagus and stomach. <u>Inhalation:</u> Severe irritation and burning of the nose, throat and respiratory tract.
<b>Chronic Effects:</b>	Signs and symptoms may include irritability, nausea or vomiting, and normocytic anemia. Chronic exposure to excess levels (greater than 50 mg/day to 100 mg/day) can result in pathological deposition of iron in the body tissues causing fibrosis of the pancreas, diabetes mellitus, and liver cirrhosis.
<b>Carcinogenic:</b>	None of this product's components are listed by ACGIH, OSHA, IARC, NIOSH, NTP or California Prop 65 as carcinogenic.
<b>Mutagenicity:</b>	Not Classified
<b>Reproductive Toxicity:</b>	Not Classified

<b>SECTION 12. ECOLOGICAL INFORMATION</b>	
<b>Ecotoxicity:</b>	May be harmful to fish, livestock and wildlife. Non-persistent and non-cumulative when properly applied agronomically. A toxic hazard to fish. Avoid spills or releases to watercourses. The products of degradation are less toxic than the product itself.
<b>Other Adverse Effects:</b>	Not harmful to ozone layer
<b>Ecotoxicity:</b>	Urea: LC50 (96 hr) <i>Poecilia reticulata</i> (guppy): 17,500 mg/L LC50 (24 hr) <i>Daphnia magna</i> (Water Flea): >10,000 mg/L, freshwater, static Ferric Sulfate: LC50 <i>Gambusia affinis</i> (Western mosquitofish) 37.2 mg/L/24, 48, 96 hr; static Phosphoric Acid: LC50 <i>Lepomis macrochirus</i> (bluegill) 10.5 mg/L Freshwater, static

<b>SECTION 13. DISPOSAL CONSIDERATIONS</b>	
<b>General Information:</b>	As packaged, this product is a D002 corrosive waste per 40 CFR 261; applicable to wastes containing this product.
<b>Disposal Instructions:</b>	Agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations. Container contents should be completely used and the containers rinsed prior to discard. Containers can be triple rinsed and offered for recycling. Rinsate should be treated as a corrosive material. Dispose of in accordance with product characteristics at time of disposal.

<b>SECTION 14. TRANSPORT INFORMATION</b>	
<b>This material is hazardous as defined by 49 CFR 172.101 by the US Department of Transportation</b>	
<b>Proper Shipping Name:</b>	Corrosive Liquid, acidic, inorganic, N.O.S. (Ferric Sulfate Solution)
<b>Hazard Class:</b>	8
<b>UN Identification #:</b>	3264
<b>Packing Group:</b>	III
<b>Required Label(s):</b>	Corrosive
<b>Emergency Response Guide Number:</b>	154
<b>Marine Pollutant:</b>	No

<b>SECTION 15. REGULATORY INFORMATION</b>	
<b>TSCA Inventory Status</b>	All intentional ingredients listed on the TSCA inventory.
<b>DSCL (EEC) Status</b>	All intentional ingredients listed on the DSCL inventory.
<b>United States – SARA Hazard Category:</b>	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories:  Fire – No, Pressure – No, Acute – Yes, Chronic – No, Reactive – No

<b>SARA Title III Information:</b>	This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:
Urea CAS No. 57-13-6	CERCLA RQ (pounds): No SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
Phosphoric Acid CAS No. 7664-38-2	CERCLA RQ (pounds): 5000 lbs (100% basis), 167,000 lbs for this product SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
Ferric Sulfate CAS No. 10028-22-5	CERCLA RQ (pounds): 1000 lbs (100% Basis), 3450 lbs for this product SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
<b>Federal Insecticide, Fungicide, and Rodenticide Act</b>	This product is not a pesticide.
<b>State Regulations:</b>	Other state regulations may apply. Check individual state requirements.

<b>SECTION 16. OTHER INFORMATION</b>	
Date of Revision:	1/5/2015, revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.
Disclaimer:	The information contained in this SDS refers only to the specific material designated and does not relate to any process or use with any other materials. This information is based on data believed to be accurate and reliable as of the date hereof. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Because safety standards and regulations are subject to change and because Geoponics Corp. has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. No warranty, expressed or implied, and no liability is assumed by Geoponics Corp. in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents.