1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name: **Roots PHC Tree Saver; Roots Tree Saver**

Product Identity: Product is a blend of natural humates (derived from Leonardite mineral) with beneficial bacteria and mycorrhizal fungi, both in spore form. Bacteria and fungi in this product are naturally-occurring, and have not been genetically modified. (Biosafety Level 1, Non-GMO). Also included is a polyacrylate that absorbs water, and formononetin, a phytoestrogenic stimulant of mycorrhizal fungi.

Recommended use : This product is a soil treatment for planting trees and shrubs.

Supplier/Manufacturer
Lebanon Seaboard Corporation
1600 East Cumberland Street
Lebanon PA 17042 USA
800-233-0628
(717-273-1685)

Emergency telephone numbers: Chemtrec (Spill) 1-800-424-9300 Prosar (Health) 888-208-1368

2. HAZARDS IDENTIFICATION

Signal Word: None Pictogram: Silhouette

Hazard Statements and Hazard Category:
H333: May be harmful if inhaled repeatedly over prolonged periods. (Category 5)

Precautionary Statements for handling: Also see Section 7.
P261: Avoid breathing dust.

Precautionary Statements for disposal - Dispose in accordance with all federal, state and local regulations. See Section 13.

Hazards not otherwise classified (HNOC): None

Unknown acute toxicity: <1% of the mixture consists of ingredients of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	%
Potassium polyacrylate, crosslinked	25608-12-2	33.3
Seaweed Meal	84775-78-0	23.6
Humate*	68514-28-3	16.3
Greensand*	1317-57-3	17.6
Maltodextrin	9050-36-6	5.3
USP Mineral Oil	8042-47-5	2.87
Kaolin Clay	1332-58-7	1
Talc	14807-96-6	0.023
Formononetin	485-72-3	0.007
Beneficial bacteria	68038-70-0	1.7 Million cfu/g
Ectomycorrhizal Fungi spores	NA	200,000 spores /g
Endomycorrhizal Fungi spores	NA	11.6 spores/g

**Note: Naturally mined minerals, like humate and greensand typically contain silica (sand) at amounts ranging from 1 to 6%. Fine silica particulates are considered as a carcinogen via repeated and prolonged inhalation.*

4. FIRST AID MEASURES

Eye Contact	Rinse eyes cautiously with water for several minutes. Remove any contact lenses if easy to do, and continue rinsing. If discomfort or irritation occurs and persists contact a physician. Not an eye irritant.
Skin Contact	Wash with soap and water.
Inhalation	If inhaled and discomfort occurs, move to fresh air, and keep person at rest in a position comfortable for breathing. If difficulty in breathing occurs and/or persists, administer oxygen and get medical attention. If medical advice is needed, have product container or label on hand.
Ingestion	Rinse mouth. Product has a very low toxicity. If you feel unwell, call a poison control center or seek medical attention. Do not induce vomiting of an unconscious person.

Self-protection of the first aider: Use any appropriate personal protective equipment as required for nuisance dusts.

Most important symptoms and effects, both acute and delayed: Nuisance dust irritation may occur with nasal discomfort under highly dusty conditions. Product can draw water from skin with prolonged contact, resulting in a drying effect, which can be mildly irritating. Ingestion of significant quantities can irritate digestive tract.

Indication of any immediate medical attention and special treatment needed: Treat Symptoms. Consult physician if discomfort or irritation persists. Product can draw water from skin with prolonged contact, resulting in a drying effect, which can be mildly irritating. Washing skin and applying hand lotion or skin moisturizer will typically resolve this. Get medical advice or attention if you feel unwell.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing media suitable to local circumstances and the surrounding environment. Options in this case include water, CO_2, ABC Dry Chemical extinguisher, or foam. Avoid stirring up dust extinguisher stream.

Specific hazards arising from the chemical
Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire, do not breathe fumes.

Explosion data
Sensitivity to mechanical impact: None
Sensitivity to static discharge: None
Note: Excessive amounts of any burnable dusts can produce explosive mixtures if allowed to disperse in the air in confined areas where ignition sources occur. Prevent excessive dust dispersal in areas of use, storage, or production.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and standard protective (bunker) gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

Personal Precautions	Use dust mask as needed or other reasonable personal protective equipment as required to prevent excessive dust inhalation. When wet, product causes extremely slippery conditions.
Environmental precautions	Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.
Methods for containment	Prevent further leakage or spillage, if safe to do so.

Methods for clean-up	Use dust mask and/or reasonable personal protective equipment as required to avoid breathing dusts. Take up mechanically, and use as originally intended or place in appropriate containers for disposal. Avoid creating dust. When wet, product causes extremely slippery conditions. Product will absorb tremendous amount of water and swell in size accordingly, so use water judiciously during initial cleanup. Remove all residue from floor to avoid future slipping accidents.

7. HANDLING AND STORAGE

Safe Handling	Avoid breathing dust. Wash hands after handling. Product is extremely slippery when wet. Clean up spills thoroughly to prevent future slipping accidents.
Storage Conditions	Keep containers tightly closed and dry to prevent water-absorption. Avoid high, overhead storage where water contact could occur. Product absorbs large amounts of water, increasing its weight dramatically when soaked. Shelves can break/fail under increased weight.
Incompatible materials	Avoid strong acids or alkali, or other reactive substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH
Quartz silica	0.025 mg/m^3 (respirable)	30 mg/m^3) ÷ (%SiO_2 + 2)	25 mg/m3 (cristobalite, tridymite); 50 mg/m3 (quartz, tripoli)
Nuisance Dusts	10 mg/m^3 (TWA- Total dust)	15 mg/m^3 (TWA total) 50 mppcf (TWA total) 5 mppcf (TWA respirable)	Not Established

Other Information: Product is of low toxicity by ingestion.
These bacteria are harmless to ordinary healthy people under normal circumstances (Biosafety Level I). However, normal hygiene practices are in order.

Engineering controls: Use with adequate ventilation and follow safe work practices to prevent excessive dust buildup in air.

Individual protection measures

Eye protection	Safety glasses, or goggles if eye contact is likely. Not needed under normal use.
Skin and Body Protection	Gloves recommended for handling.
Respiratory Protection	Dust mask recommended for dusty conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.
General Hygiene	Wash hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Appearance	Granules
Color	Various, mostly black
Odor	slight
Odor Threshold	No information available

pH	Not applicable
Melting point/freezing point	Not applicable
Boiling point / boiling range	Not applicable
Flash point	No information available
Evaporation rate	Not applicable
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	Not applicable
Vapor density	Not applicable
Bulk Density	approx. 55-62 Lbs per cubic yard
Water solubility	Mostly insoluble in water, but absorbs water dramatically and swells in size and weight.
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Oxidizing properties	None

10. STABILITY AND REACTIVITY

Reactivity
Not reactive

Chemical stability
Stable.

Possibility of Hazardous Reactions
May release heat and fumes when mixed in solution with incompatible reactive materials.

Hazardous polymerization
Will not occur.

Conditions to avoid
High heat, sparks and open flames, as material may burn.

Incompatible materials
Strong acids or alkali, or other reactive substances.

Hazardous Decomposition Products
May emit toxic fumes under fire conditions, such as Nitrogen oxides (NOx), Ammonia, Oxides of sulfur, Hydrogen chloride and Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Routes of exposure: Ingestion, eyes (contact), skin (contact), dust inhalation.

Symptoms	Mild drying of skin with prolonged contact. May irritate digestive tract if eaten.
Sensitization	None expected.
Germ cell mutagenicity	None
Carcinogenicity	Note: Naturally mined minerals, like humate and greensand typically contain silica (sand) at amounts ranging from 1 to 6%. Fine, inhalable silica particulates are considered as a carcinogen via repeated and prolonged inhalation (IARC, ACGIH).
Reproductive toxicity	None at reportable levels.
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	Lungs via dust inhalation.
Target Organ Effects	Lungs-Nuisance dusts
Aspiration hazard	No information available

12. ECOLOGICAL INFORMATION

Non toxic to terrestrial or aquatic life.
The bacteria and fungi in this product are not harmful to animals or plants, including aquatic life, and they are naturally occurring in forest soil ecosystems. No adverse ecological effects are reported or expected from normal use or from accidental spill of this product.

Fish toxicity: None.
Daphnia toxicity: None.
Partially Biodegradable: Can increase BOD and COD temporarily.

Persistence and degradability	Partially biodegradable.
Bioaccumulation	Not expected to bioaccumulate, based on composition.
Other adverse effects	No information available

13. DISPOSAL CONSIDERATIONS

This material, as supplied is not a hazardous waste according to federal regulations (40 CFR 261).

Disposal of wastes:

This product is a non-hazardous waste material suitable for approved solid waste landfills.
No EPA Waste Numbers are applicable for this product's components.
Dispose of in accordance with Local, State, and Federal regulations.

Contaminated packaging

No US Federal special packaging considerations at the date of this document. Follow local regulations.

14. TRANSPORT INFORMATION

DOT:	Not Regulated
Proper Shipping Name:	Non Regulated
Hazard Class:	Not Applicable
IATA:	Not Regulated
Proper Shipping Name:	Non Regulated
Hazard Class:	Not Applicable
IMDG/IMO	Not Regulated
Hazard Class	Not Applicable
Marine Pollutant	No

ADR:	Not Regulated
ADN:	Not Regulated
RID:	Not Regulated
IATA:	Not Regulated
TDG:	Not Regulated
ICAO:	Not Regulated
MEX:	Not Regulated

IMDG: Not a dangerous good.
ICAO/IATA: Not a dangerous good.

15. REGULATORY INFORMATION

SARA 313 Superfund Amendments: This product contains no chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal regulations, Part 372.

SARA 311/312 Hazard Categories

Acute: No

Chronic:	Yes
Fire:	No
Sudden release of pressure:	No
Reactive:	No

CERCLA: This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material .

Clean Water Act: This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

State Regulations – General: This product is not regulated by any State as a hazardous material.
No components subject to "Right-To-Know" legislation at the state level.

California Proposition 65: This product contains substances (silica sand mineral) known to the state of California to cause cancer by repeated and prolonged inhalation over long time periods.

International Inventories

TSCA (USA):	Complies
General Product Information:	This product is not federally regulated as a hazardous material.
Clean Air Act:	No information is available.
Clean Water Act:	No information is available.

Component Analysis – WHMIS IDL No components are listed in the WHMIS IDL.

16. OTHER INFORMATION

HMIS Ratings

Health:	1
Flammability:	0
Reactivity:	0
Personal Protection:	X

Disclaimer

The information provided in this material safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.