1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name: ROOTS BioPak Plus 3-0-20

EPA No: Not applicable

Product Identity: Bio Soluble Fertilizer/Inoculant

Supplier/Manufacturer
Lebanon Seaboard Corporation
1600 East Cumberland Street
Lebanon PA 17042
Tel: 1-800-233-0628 USA
(717-273-1685) INTL Supplier Email: customerservice@lebsea.com

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

2. HAZARDS IDENTIFICATION

OSHA Signal Word: Warning

Classification:
H302: Harmful if swallowed. (Category 4), Acute toxicity, oral
H315: Causes skin irritation. (Category 2), Skin corrosion/irritation
H335: May cause respiratory irritation. (Category 3), Specific target organ toxicity, single exposure; Respiratory tract irritation
H319: Causes serious eye irritation. (Category 2A), Serious Eye Irritation
H320: Causes eye irritation. (Category 2B), Eye Irritation

Hazard Statements:
See Section 16 for a full list of Hazard Statements

Pictogram:



Precautionary Statements for handling:
P264: Wash hands and exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305: If in eyes, rinse with water and seek medical attention if symptoms persist.
P330: Rinse mouth.
P362: Take off contaminated clothing and wash before reuse.
P301: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P352: IF ON SKIN: Wash with plenty of soap and water.
P351: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313: If skin irritation occurs: Get medical advice/ attention.

P332: If skin irritation occurs: Get medical advice/ attention.
P337: If eye irritation persists: Get medical advice/attention.
P405: Store locked up.
P403: Store in a well-ventilated place.
P233: Keep container tightly closed.
P501: Dispose of contents/container properly as required by law for waste pesticides.
Keep out of reach of children

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

Hazards not otherwise classified (HNOC): None

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight %
Potassium Citrate Monhydrate	6100-05-6	45 - 50
Ferrous Sulfate Monohydrate	17375-41-6	20 - 25
Urea	57-13-6	5 - 10
SOLUBLE YUCCAH POWDER 30% YUCC	90147-57-2	5 - 10
humic acid, potassium salt	68514-28-3	5 - 10
Polyethylene Glycol	25322-68-3	1 - 5
MAGNESIUM HYDROXIDE 42% MG	1309-42-8	1 - 5
ATLANTIC SOLUBLE SEAWEED EXTRA	No Cas Number	1 - 5
Maltodextrin	9050-36-6	1 - 5
EDTA, Zinc-Disodium Complex	14025-21-9	1 - 5

4. FIRST AID MEASURES

Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Skin Contact	Wash with soap and water. If injury occurs, or if discomfort or irritation persists contact a physician.
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. Drink Plenty of water. 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.
Eye irritation on contact with redness, tearing and burning sensation.
Coughing, sneezing, or irritation of nose and throat.
Redness, itching, or burning sensation on skin with prolonged contact.

Indication of any immediate medical attention and special treatment needed: Treat Symptoms.

Consult physician if discomfort or irritation persists.

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 and gloves as needed or other reasonable personal protective equipment as required to prevent contact with eyes or skin. Remove ignition sources prior to clean-up. If in eyes, rinse cautiously with water for several minutes. If eye irritation persists: Seek medical advice. If in eyes, rinse cautiously with water for several minutes. If eye irritation persists: Seek medical advice. If experiencing significant respiratory symptoms: seek medical attention.
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. Moisten or cover powder spill with plastic sheet or tarp to minimize spreading. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Soak up excess with inert absorbent material. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Safe Handling	Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required to avoid breathing dusts or mists, and to prevent eye contact. Wash hands thoroughly after handling.
Storage Conditions	Keep containers tightly closed in a cool, well- ventilated place. Keep out of the reach of children.
Incompatible materials	Avoid strong acids or alkali, or other reactive substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidlines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH*
Ferrous Sulfate Monohydrate	1 mg/m3 (Fe) TWA		
DISSOLVINE E MN 13	0.02 mg/m3 (Mn) TWA (inh)	"1 mg/m3 TWA (Mn fume) 5 mg/m3 Ceiling (Mn)"	500 mg/m3 (Mn)
Nuisance Dusts (for granulars)	10 mg/m3 (TWA- Total)	15 mg/m3 (TWA total) 50 mppcf (TWA total) 5 mppcf (TWA respirable)	Not Established

*IDLH refers to amounts that are "Immediately Dangerous to Life or Health"

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

Individual protection measures Use personal protective equipment as required to avoid breathing dust/mist, and to prevent eye contact.

Eye protection	Provide face and eye protection: face shield and goggles recommended if face or eye contact is likely.
Skin and Body Protection	Gloves and standard work coveralls recommended
Respiratory Protection	Dust mask recommended for dusty or misty 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	When using product, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

Also see Precuationary Statements in Section 2

9. PHYSICAL AND CHEMCIAL PROPERTIES

Physical state	Soluble Powder
Appearance	Soluble Powder
Color	Mixed, various
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 Limits in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	Not applicable

Vapor density	Not applicable
Water solubility	Soluble
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Oxidizing properties	Not particularly reactive

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 some ingredients may be burnable.

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	May irritate the digestive tract if ingested in quantity, causing nausea, vomiting and diarrhea. Eye irritation on contact with redness, tearing and burning sensation. Coughing, sneezing, or irritation of nose and throat. Redness, itching, or burning sensation on skin with prolonged contact.
Sensitization	No information available.
Germ cell mutagenicity	None known unless noted below in Other
Carcinogenicity	Contains EDTA. EDTA is not carcinogenic, but substances similar to EDTA (Nitrilotriacetic acid [NTA] and its salts) were determined to be "possibly carcinogenic to humans" (Group 2B) by IARC, a compound which "may reasonably be anticipated to be a carcinogen" by NTP and a "select carcinogen" by OSHA. EDTA may contain trace amounts of NTA.
Reproductive toxicity	The bacteria in this product are typically harmless strains, and are not associated with disease or infection healthy people (Biosafety Level 1). However, use good hygiene practices. Handle as rich soil or compost. Nonporous gloves recommended. Wash hands thoroughly after handling. Avoid breathing dust. Persons with severely compromised immune systems should consult with their physician before handling microbial products. No information available.

STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	Yes
Target Organ Effects	Lungs-Nuisance dusts
Aspiration hazard	No information available
Other	The bacteria in this product are typically harmless strains, and are not associated with disease or infection healthy people (Biosafety Level 1). However, use good hygiene practices. Handle as rich soil or compost. Nonporous gloves recommended. Wash hands thoroughly after handling. Avoid breathing dust. Persons with severely compromised immune systems should consult with their physician before handling microbial products.

12. ECOLOGICAL INFORMATION

Fertilizers may be harmful to aquatic life with short term effects, causing algal bloom and increased BOD, depending on the amount released.

Persistence and degradability	No information available
Bioaccumulation	No information available
Other adverse effects	No information available

13. DISPOSAL CONSIDERATIONS

Disposal of wastes:
Excess product should be used up according to label directions, to avoid disposal issues. Dispose of in accordance with Local, State, and Federal regulations.

Contaminated packaging
Dispose empty container with normal trash, unless prohibited by local regulations.

14. TRANSPORT INFORMATION

NMFC 68140-4 FERTILIZER COMPOUNDS (MANUFACTURED FERTILIZERS) NOI, DRY 20 OR GREATER PCF

DOT:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
IATA:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
IMDG/IMO:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
IMDG:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
ADR:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
ADN:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
RID:	Not Regulated
Proper Shipping Name:	Not Regulated

Hazard Class:	Not Applicable
TDG:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
ICAO:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable
MEX:	Not Regulated
Proper Shipping Name:	Not Regulated
Hazard Class:	Not Applicable

15. REGULATORY INFORMATION

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: 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)

SARA 313 Superfund Amendments: Contains manganese compounds, 313 Category N450, 1% de minimis concentration (related to Manganese)

SARA 311/312 Hazard Categories:

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

CERCLA: Contains manganese compounds, 313 Category N450
Ferrous sulfate: RQ = 1000 Lbs

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.

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

Component Analysis - State: Ferrous sulfate: CA, MA, NJ, NY, PA
Manganese compounds: CA, MA, MN, NJ, PA, RI
Right to know NJ, PA: Ethylenediaminetetraacetic acid, zinc-disodium complex
Tripotassium citrate: NJ, PA

16. OTHER INFORMATION

Hazard Statements:
H302: Harmful if swallowed. (Category 4)
H315: Causes skin irritation. (Category 2)

H316: Causes mild skin irritation. (Category 3)
H319: Causes serious eye irritation. (Category 2A)
H320: Causes eye irritation. (Category 2B)
H335: May cause respiratory irritation. (Category 3)

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.