



**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY**

Product Name: **Roots PHC BioPak Plus; Roots BioPak Plus**

Product Identity: Mixed dry soluble fertilizer.

Recommended use

This product is a mixed soluble granular fertilizer for landscape use.

Supplier/Manufacturer

**Lebanon Seaboard Corporation**  
**1600 East Cumberland Street**  
**Lebanon PA 17042**  
800-233-0628  
(717-273-1685)

Emergency telephone numbers:

Chemtrec (Spill) 1-800-424-9300

Prosar (Health) 888-208-1368

**2. HAZARDS IDENTIFICATION**

**OSHA Signal Word:** Warning.

**Hazard Statements:**

H302 Category 4: Harmful if swallowed in quantity.  
H319 Category 2A: Causes serious eye irritation on contact.  
H335: Causes respiratory irritation if inhaled.  
H315 Category 2: Causes skin irritation with prolonged contact.



**Precautionary Statements:**

P233: Keep container tightly closed.  
P262: Do not get in eyes, on skin, or on clothing.  
P264: Wash hands 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/protective clothing/eye protection/face protection.  
P301, P310, P312: IF SWALLOWED: Rinse mouth and call a POISON CENTER or doctor/physician.  
P332: If on skin, wash with plenty of soap and water. If irritation occurs and persists, seek medical advice.  
P337: In case of eye contact, rinse cautiously with water for several minutes. If eye irritation occurs and persists, seek medical advice.  
P340: If inhaled and in distress, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P351: If in eyes: Rinse cautiously with water for several minutes. Seek medical attention if irritation persists.  
P361: Remove immediately all contaminated clothing, and wash separately before reuse.  
P403, 405: Store locked up, in a well-ventilated place.  
P501: Dispose in accordance with local, State, and Federal regulations.

**Hazards not otherwise classified (HNOC):** The bacteria contained in this product are strains of typically harmless soil and water bacteria, and are not associated with disease or infections under normal circumstances (Biosafety Level 1). However, reasonable precautions are in order. Handle as you would rich, dark soil or compost: keep it out of your mouth, eyes, lungs, and broken skin. Wash hands thoroughly after use. Remove and launder heavily soiled clothing separately before reuse.

Persons with severely suppressed immune systems, such as those with advanced AIDS, or those taking anti-rejection drugs, or those undergoing chemotherapy should contact their physician before handling ordinary microbial products.

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

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Ingredient                           | CAS#       | %                |
|--------------------------------------|------------|------------------|
| Potassium citrate                    | 6100-05-6  | 45 - 50          |
| Ferrous sulfate                      | 7782-63-0  | 20 -25           |
| Polyethylene glycol                  | 25322-68-3 | 1 - 5            |
| Magnesium hydroxide                  | 1309-42-8  | 1 - 5            |
| Yucca extract                        | 90147-57-2 | 1 - 3            |
| Manganese EDTA                       | 15735-84-5 | 1 - 3            |
| Zinc EDTA                            | 14025-21-9 | 1 - 3            |
| Precipitated Silica                  | 7631-86-9  | 1.019            |
| Sodium borate                        | 1303-96-4  | 0.05 - 0.2       |
| Bacteria*                            | 68038-70-0 | 19 Million cfu/g |
| Nonhazardous fertilizers and fillers | Various    | Balance          |

\*Bacteria are present on a carrier of maltodextrin. Bacterial mass is too insignificant to express as a percent of weight.

**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 persists contact a physician.
- Skin Contact            Wash with soap and water. If injury occurs, or if discomfort or irritation persists or rash occurs, 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                IF SWALLOWED: Rinse mouth and call a POISON CENTER or doctor/physician.

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.

Indication of any immediate medical attention and special treatment needed: Treat Symptoms. Consult physician if discomfort or irritation persists. 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<sub>2</sub>, 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. Avoid breathing dust.                                                                                                                                                             |
| 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          | Read and understand all safety precautions before handling. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required to avoid breathing product 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 Guidelines

| Ingredient                  | CAS#       | OSHA PEL                   | ACGIH TLV                     |
|-----------------------------|------------|----------------------------|-------------------------------|
| Magnesium hydroxide         | 1309-42-8  | -                          | -                             |
| Zinc EDTA                   | 14025-21-9 | -                          | -                             |
| Ferrous sulfate monohydrate | 13463-43-9 | -                          | 1 mg/ m <sup>3</sup> , as Fe  |
| Manganese disodium EDTA     | 15735-84-5 | 5 mg/m <sup>3</sup> (Ceil) | 0.2 mg/m <sub>3</sub> , as Mn |
| Beneficial bacteria         | 68038-70-0 | -                          | -                             |
| Nuisance dust; Total        |            | 5 mg/m <sub>3</sub>        | 3 mg/m <sub>3</sub>           |
| Nuisance dust; Respirable   |            | 15 mg/m <sub>3</sub>       | 10 mg/m <sub>3</sub>          |

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

**Individual protection measures**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye protection           | Safety glasses, or goggles if 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Other Information:       | The bacteria contained in this product are strains of typically harmless soil and water bacteria, and are not associated with disease or infection in normally healthy people under normal circumstances. However, reasonable precautions are in order. Use good hygiene practices. Handle with nonporous gloves. Wash hands after handling. Wash hands and face before handling food or drink. If spilled on clothing, wash separately from other clothing. Remove and wash contaminated clothing before reuse. Clean clothing should be worn daily to avoid possible long-term buildup of the product leading to chronic overexposure. Persons with severely compromised immune systems should consult with their physician before handling microbial products. |

**9. PHYSICAL AND CHEMICAL PROPERTIES**

|                               |                                         |
|-------------------------------|-----------------------------------------|
| Physical state                | Solid                                   |
| Appearance                    | Mostly black powder with light speckles |
| Color                         | Mixed, various                          |
| Odor                          | Slight herbal odor                      |
| Odor Threshold                | No information available                |
| pH                            | 5.5 to 6.7 (1% aqueous solution)        |
| 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 0.9 g/cc                         |
| 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          | None                                    |

**10. STABILITY AND REACTIVITY**

**Reactivity**  
No data available

**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.                                                                                         |
| Sensitization            | No information available.                                                                                                                                                                |
| Germ cell mutagenicity   | No information available                                                                                                                                                                 |
| Carcinogenicity          | Not listed as carcinogenic.                                                                                                                                                              |
| Reproductive toxicity    | No information available                                                                                                                                                                 |
| STOT - single exposure   | No information available                                                                                                                                                                 |
| STOT - repeated exposure | No information available                                                                                                                                                                 |
| Chronic toxicity         | Prolonged inhalation may lead to respiratory tract irritation. Repeated or prolonged inhalation of magnesium dust has been reported to cause increased incidence of digestive disorders. |
| Target Organ Effects     | Lungs; respiratory irritation                                                                                                                                                            |
| Aspiration hazard        | No information available                                                                                                                                                                 |

**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 | Partially biodegradeable                            |
| 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**

Fertilizer, N.O.S.

|                       |                |              |               |
|-----------------------|----------------|--------------|---------------|
| <b>DOT:</b>           | Not Regulated  | <b>ADR:</b>  | Not Regulated |
| Proper Shipping Name: | Non Regulated  | <b>ADN:</b>  | Not Regulated |
| Hazard Class:         | Not Applicable | <b>RID:</b>  | Not Regulated |
| <b>IATA:</b>          | Not Regulated  | <b>IATA:</b> | Not Regulated |
| Proper Shipping Name: | Non Regulated  | <b>TDG:</b>  | Not Regulated |
| Hazard Class:         | Not Applicable | <b>ICAO:</b> | Not Regulated |
| <b>IMDG/IMO</b>       | Not Regulated  | <b>MEX:</b>  | Not Regulated |
| Hazard Class          | Not Applicable |              |               |
| Marine Pollutant      | No             |              |               |

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

**CERCLA:** Ferrous sulfate: RQ = 1000 Lb.

**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**

**State Lists: Ferrous sulfate:** CA, MA, NJ, PA, NY

**California Proposition 65:** This product may contain detectable quantities of a substance (sand mineral: silica) known to the State of California to cause cancer by prolonged, repeated inhalation over a long period of time (months to years).

**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.

**State Regulations – General:** This product is not regulated by any State as a hazardous material.

**Component Analysis – State**            None of this product’s components are on the state lists from CA, FL, MA, MN, NJ, or PA.

**16. OTHER INFORMATION**

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.