

**NOVOZYMES BIOLOGICALS, INC.**  
**111 Kessler Mill Road**  
**Salem, VA 24153**

Telephone number: 540-389-9361 Fax: 540-389-9364  
Emergency Contact: 540-389-9361 CHEMTREC: 1-800-424-9300

**Material Safety Data Sheet**

**Date: 03/07/2005**

**SECTION I—PRODUCT IDENTIFICATION**

<b>NAME: ROOTS®</b>	<b>PRODUCT CODE: - 7004207</b>
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**DOT CLASS:** Non-regulated  
**UN NUMBER:** NA  
**PROPER SHIPPING NAME:** NA

**HMIS RATING**

HEALTH	1
FIRE	0
REACTIVITY	0

**SECTION II - INGREDIENTS**

ALL COMPONENTS APPEAR ON THE TSCA INVENTORY. COMPONENTS NOT LISTED IS EITHER NON HAZARDOUS OR IN CONCENTRATIONS OF LESS THAN 1%.

Ingredient Name	CAS Number	OSHA PEL	ACGIH TLV/TWA
Vitamin B1 (Thiamine)	532-43-4	NA	NA
Vitamin C (Ascorbic acid)	50-81-7	NA	NA
Vitamin E (a-Tocopherol)	7695-91-2	NA	NA

**SECTION III – PHYSICAL CHARACTERISTICS**

<b>Boiling Point</b>	213° F	<b>Appearance and Odor</b>	Chocolate to Brown colored liquid. Mild earthy odor.
<b>Specific Gravity</b>	1.10 – 1.20	<b>Melting Point</b>	NA
<b>pH</b>	4.8 – 5.6	<b>Vapor Density</b>	Equivalent to water
<b>Vapor Pressure</b>	Equivalent to water	<b>Solubility</b>	Complete

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#### **SECTION IV – FIRE/EXPLOSION**

<b>Flash Point:</b>	NA
<b>Flash Point Method Used:</b>	NA
<b>LEL</b>	NA
<b>UEL:</b>	NA

**Extinguishing Media:** Water spray, carbon dioxide, and dry chemical powder.

**Special Fire Fighting Procedures:** None

**Unusual Fire and Explosion Hazards:** None known.

#### **SECTION V – REACTIVITY DATA**

**Stable:** X                      **Unstable:**

**Incompatibility:** Avoid contact with strong oxidizing agents.

**Hazardous Decomposition or By Products:** small amounts of carbon monoxide and carbon dioxide.

**Hazardous Polymerization:** Will not occur.

#### **SECTION VI – HEALTH HAZARD DATA**

**Acute Health Affects**

<b>Routes of Entry:</b>	<b>Inhalation: Yes</b>	<b>Absorption: Yes</b>	<b>Ingestion: Yes</b>	<b>Eyes: Yes</b>
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**Eyes:** This product will cause eye irritation.

**Skin Contact:** Prolonged contact may cause irritation, contact dermatitis and drying of the skin.

**Inhalation:** Inhaling mist from this product could cause irritation to the lungs and mucus membranes.

**Ingestion:** Ingestion may result in abdominal pain, nausea and vomiting.

**Conditions to Avoid:** Avoid containers and piping made from aluminum, copper alloys and/or galvanized metal.

**Signs and Symptoms of Over Exposure:** None Known

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**Aggravated Medical Conditions:** None known, however persons with respiratory problems should avoid breathing any mist from this product.

**Emergency First Aid Procedures**

**Eye Contact:** Rinse eyes with water for fifteen minutes, if irritation persists, see a physician.

**Inhalation:** Move person to fresh air and avoid breathing dust from product. If breathing problems develop, seek the care of a physician.

**Skin Contact:** Wash the product off the skin with soap and water; if irritation develops seek the care of a physician.

**Ingestion:** Watch victim for any signs of illness, contact a physician immediately, induce vomiting only if advised by a physician.

**SECTION VII – SPILL OR LEAK PROCEDURE**

**Steps to be taken in case material is spilled or leaked:**

**Waste Disposal Method:** Contain and collect material, place in proper container for reuse or disposal. Dispose of materials in accordance with all federal, state and local laws.

**Precautions To Be Taken In Handling and Storage:** Store in a location away from children, food items and potable water.

Store in an area out of the direct sunlight, avoid storage above 100 F or below 32 F, keep container closed when not in use and avoid storing in a damp environment.

Always wash hands with soap and water before handling food or smoking.

Use good chemical hygiene practices when working with any chemical.

**Other Precautions:** None

**SECTION VIII – CONTROL MEASURES (PPE)**

**Respiratory Protection:** None required for normal use.

**Protective Gloves:** Recommended. Disposable nitrile exam gloves are suitable for preventing prolonged contact with the skin.

**Eye Protection:** Safety glasses with side shields or splash goggles are recommended.

**Other Protective Clothing:** None required, however, avoid prolonged contact with the skin from soiled clothing.

**Ventilation:** Local exhaust should be sufficient. If used in a manner that creates a mist, mechanical ventilation may be necessary.

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The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal, state and local laws.

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