

**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: 08/06/2004**

**SECTION I—PRODUCT IDENTIFICATION**

<b>NAME: ironROOTS®</b>	<b>PRODUCT CODE: - 7004208</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
Iron	7439-89-6	NA	NA

**SECTION III – PHYSICAL CHARACTERISTICS**

<b>Boiling Point</b>	100 °C	<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>	6.0 – 6.4	<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>
	<b>(dust)</b>			

**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.

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

**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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