

# MATERIAL SAFETY DATA SHEET

Clzyme™ Thermolysin

MSDS DATE: 9/17/2009

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## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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**PRODUCT NAME:** Clzyme™ Thermolysin  
**SYNONYMS:** Thermolysin, Neutral Protease  
**CATALOG NUMBER:** 002-1000, 002-2000

**MANUFACTURER:** VitaCyte, LLC  
**ADDRESS:** 1102 Indiana Ave.  
Indianapolis, IN 46202  
**TECHNICAL PHONE:** 888-664-2687 or 317-917-3457  
**FAX PHONE:** 317-917-3459

**CHEMICAL NAME:** Lyophilized purified thermolysin from *Bacillus thermoproteolyticus* 'rokko'

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## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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<u>INGREDIENT:</u>	<u>CAS NO.</u>	<u>% WT</u>
Thermolysin Purified	9073-78-3	> 98%
Glycylglycine	556-50-3	<1%
Calcium Chloride	10035-04-8	<1%

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## SECTION 3: HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW:

Harmful.  
Irritating to eyes, respiratory system and skin.

**ROUTES OF ENTRY:** Ingestion, inhalation, skin and/or eye contact.

### POTENTIAL HEALTH EFFECTS

**EYES:** May cause irritation.

**SKIN:** May cause irritation.

**INGESTION:** May cause gastrointestinal irritation.

**INHALATION:** May cause allergic respiratory reaction.

**ACUTE HEALTH HAZARDS:** None known

**CHRONIC HEALTH HAZARDS:** None known

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** None known

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## SECTION 4: FIRST AID MEASURES

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### EYES:

In case of contact, immediately wash eyes with copious amounts of water for at least 15 minutes.

### SKIN:

In case of contact, wash skin with soap and copious amounts of water. Remove contaminated clothing and shoes.

### INGESTION:

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

### INHALATION:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**SECTION 4 NOTES:** None

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## SECTION 5: FIRE-FIGHTING MEASURES

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**AUTOIGNITION TEMPERATURE:** N/A

### NFPA HAZARD CLASSIFICATION

**HEALTH:** 2      **FLAMMABILITY:** 0      **REACTIVITY:** 1  
**OTHER:**

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## HMS HAZARD CLASSIFICATION

HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 1  
PROTECTION:

### EXTINGUISHING MEDIA:

Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Not considered to be a fire or an explosion hazard.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nature of decomposition products not known.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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### ACCIDENTAL RELEASE MEASURES:

Ventilate area and evacuate personnel to safe areas. Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves during clean up. Soak up liquid with absorbent material and place contaminated material in appropriate sealed container for waste disposal. Wash spill site after material pick-up is complete.

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## SECTION 7: HANDLING AND STORAGE

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**HANDLING:** Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

**STORAGE:** Keep in a tightly closed container at -70 °C or colder.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### ENGINEERING CONTROLS:

Safety shower, eye wash station and mechanical exhaust system.

**RESPIRATORY PROTECTION:** Respiratory protection is not required under normal use of this product. If respiratory protection is needed use a government approved respirator.

**EYE PROTECTION:** Chemical safety goggles or appropriate eye protection

**SKIN PROTECTION:** Compatible chemical-resistant gloves

**WORK HYGIENIC PRACTICES:** Wash thoroughly after handling

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE:** White to off-white lyophilized cake or powder

**PHYSICAL STATE:** Solid

**pH AS SUPPLIED:** pH 7-8

**BOILING POINT:** Not determined

**MELTING POINT:** Not determined

**FREEZING POINT:** Not determined

**VAPOR PRESSURE (mmHg):** Not determined

**VAPOR DENSITY (AIR = 1):** Not determined

**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** Not determined

**EVAPORATION RATE:** Not determined

**SOLUBILITY IN WATER:** Not determined

### SECTION 9 NOTES:

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## SECTION 10: STABILITY AND REACTIVITY

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### STABILITY:

Stable under ordinary conditions of storage and use.

**CONDITIONS TO AVOID (STABILITY):** Heat and extreme pH levels

**INCOMPATIBILITY (MATERIAL TO AVOID):** Strong oxidizing agents, strong acids and bases.

**POLYMERIZATION:** None under normal processing

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:** Nature of decomposition products not known.

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# MATERIAL SAFETY DATA SHEET

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### TOXICOLOGICAL INFORMATION:

#### Route of Exposure:

- Skin Contact – Causes skin irritation
- Skin Absorption – May be harmful if absorbed through the skin.
- Eye Contact – Causes eye irritation.
- Ingestion – May be harmful if swallowed.

#### Signs and Symptoms of Exposure:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS NUMBER: N/A

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## SECTION 12: ECOLOGICAL INFORMATION

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ECOLOGICAL INFORMATION: No data available on this product

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### WASTE DISPOSAL METHOD:

Recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## SECTION 14: TRANSPORT INFORMATION

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### U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: None

NON-HAZARDOUS FOR TRANSPORT: This substance is considered to be non-hazardous for transport.

### AIR TRANSPORTATION

PROPER SHIPPING NAME: None

NON-HAZARDOUS FOR AIR TRANSPORT: This substance is considered to be non-hazardous for transport.

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## SECTION 15: REGULATORY INFORMATION

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### U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): NO

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): NO

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): NO

311/312 HAZARD CATEGORIES: None

313 REPORTABLE INGREDIENTS: None

### STATE REGULATIONS:

### CANADIAN REGULATIONS:

DSL: No

NDSL: No

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## SECTION 16: OTHER INFORMATION

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DISCLAIMER: For R&D purposes only. This product is not intended for use in diagnostic or therapeutic applications.

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**CHEMICAL NAME:** Liquid purified thermolysin from *Bacillus thermoproteolyticus* 'rokko'

---

## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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<u>INGREDIENT:</u>	<u>CAS NO.</u>	<u>% WT</u>
Thermolysin Purified	9073-78-3	1-3%
Glycylglycine	556-50-3	<1%
Calcium Chloride	10035-04-8	<1%
Water	7732-18-5	97-99%

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## SECTION 3: HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW:

Harmful.  
Irritating to eyes, respiratory system and skin.

**ROUTES OF ENTRY:** Ingestion, inhalation, skin and/or eye contact.

### POTENTIAL HEALTH EFFECTS

**EYES:** May cause irritation.

**SKIN:** May cause irritation.

**INGESTION:** May cause gastrointestinal irritation.

**INHALATION:** May cause allergic respiratory reaction.

**ACUTE HEALTH HAZARDS:** None known

**CHRONIC HEALTH HAZARDS:** None known

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** None known

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## SECTION 4: FIRST AID MEASURES

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### EYES:

In case of contact, immediately wash eyes with copious amounts of water for at least 15 minutes.

### SKIN:

In case of contact, wash skin with soap and copious amounts of water. Remove contaminated clothing and shoes.

### INGESTION:

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

### INHALATION:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**SECTION 4 NOTES:** None

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## SECTION 5: FIRE-FIGHTING MEASURES

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**AUTOIGNITION TEMPERATURE:** N/A

**NFPA HAZARD CLASSIFICATION**

**HEALTH:** 2      **FLAMMABILITY:** 0      **REACTIVITY:** 1  
**OTHER:**

**HMIS HAZARD CLASSIFICATION**

**HEALTH:** 2      **FLAMMABILITY:** 0      **REACTIVITY:** 1  
**PROTECTION:**

**EXTINGUISHING MEDIA:**

Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Not considered to be a fire or an explosion hazard.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nature of decomposition products not known.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**ACCIDENTAL RELEASE MEASURES:**

Ventilate area and evacuate personnel to safe areas. Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves during clean up. Soak up liquid with absorbent material and place contaminated material in appropriate sealed container for waste disposal. Wash spill site after material pick-up is complete.

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## SECTION 7: HANDLING AND STORAGE

---

**HANDLING:** Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

**STORAGE:** Keep in a tightly closed container at -20 °C or colder.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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**ENGINEERING CONTROLS:**

Safety shower, eye wash station and mechanical exhaust system.

**RESPIRATORY PROTECTION:** Respiratory protection is not required under normal use of this product. If respiratory protection is needed use a government approved respirator.

**EYE PROTECTION:** Chemical safety goggles or appropriate eye protection

**SKIN PROTECTION:** Compatible chemical-resistant gloves

**WORK HYGIENIC PRACTICES:** Wash thoroughly after handling

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE:** Clear, slightly tan or beige colored liquid

**PHYSICAL STATE:** Liquid

**pH AS SUPPLIED:** pH 7-8

**BOILING POINT:** Not determined

**MELTING POINT:** Not determined

**FREEZING POINT:** Not determined

**VAPOR PRESSURE (mmHg):** Not determined

**VAPOR DENSITY (AIR = 1):** Not determined

**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** Not determined

**EVAPORATION RATE:** Not determined

**SOLUBILITY IN WATER:** Not determined

**SECTION 9 NOTES:**

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## SECTION 10: STABILITY AND REACTIVITY

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**STABILITY:**

Stable under ordinary conditions of storage and use.

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**CONDITIONS TO AVOID (STABILITY):** Heat and extreme pH levels

**INCOMPATIBILITY (MATERIAL TO AVOID):** Strong oxidizing agents, strong acids and bases.

**POLYMERIZATION:** None under normal processing

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:** Nature of decomposition products not known.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### TOXICOLOGICAL INFORMATION:

#### Route of Exposure:

Skin Contact – Causes skin irritation

Skin Absorption – May be harmful if absorbed through the skin.

Eye Contact – Causes eye irritation.

Ingestion – May be harmful if swallowed.

#### Signs and Symptoms of Exposure:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**RTECS NUMBER:** N/A

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## SECTION 12: ECOLOGICAL INFORMATION

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**ECOLOGICAL INFORMATION:** No data available on this product

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### WASTE DISPOSAL METHOD:

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## SECTION 14: TRANSPORT INFORMATION

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### U.S. DEPARTMENT OF TRANSPORTATION

**PROPER SHIPPING NAME:** None

**NON-HAZARDOUS FOR TRANSPORT:** This substance is considered to be non-hazardous for transport.

### AIR TRANSPORTATION

**PROPER SHIPPING NAME:** None

**NON-HAZARDOUS FOR AIR TRANSPORT:** This substance is considered to be non-hazardous for transport.

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## SECTION 15: REGULATORY INFORMATION

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### U.S. FEDERAL REGULATIONS

**TSCA (TOXIC SUBSTANCE CONTROL ACT):** NO

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):** NO

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):** NO

**311/312 HAZARD CATEGORIES:** None

**313 REPORTABLE INGREDIENTS:** None

### STATE REGULATIONS:

### CANADIAN REGULATIONS:

**DSL:** No

**NDSL:** No

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## SECTION 16: OTHER INFORMATION

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**DISCLAIMER:** For R&D purposes only. This product is not intended for use in diagnostic or therapeutic applications.