

MATERIAL SAFETY DATA SHEET	
OSHA Hazard Communication Standard, 29CFR 1910.1200.	
1. Identification Of Product & Company	
PRODUCT NAME:	Phyto-Zyme®
INTENDED USE :	Agricultural Applications for Soils, Crops, Turf and Landscaping
DETAILS OF COMPANY:	Bio-Organic Catalyst, Inc., A wholly owned subsidiary of Neozyme International, Inc. 711 W. 17th Street, Suite E-6 Costa Mesa, CA 92627 Phone: (949) 515-1301 / Fax: (949) 515-1314
2. Composition/Information On Ingredients	
SUBSTANCE: Water, highly purified proteins from plant and mineral sources.	
3. Hazardous Identification	
DANGER CLASSIFICATION: None	
RISK PHRASES: None	
P PHRASES: None	
4. First Aid Measures	
GENERAL: Wash well after use.	
ON INHALATION: None	
ON EYE CONTACT: Wash with copious amounts of water.	
ON SKIN CONTACT: Wash with soap and water.	
ON INGESTION: Should any symptoms occur, seek medical attention.	
5. Fire Fighting Measures	
EXTINGUISHING MEDIA	
RECOMMENDED: Water/Dry Chemical	
NOT TO BE USED: None	
SPECIAL INSTRUCTIONS FOR FIRE FIGHTING PERSONNEL: None	
6. Accidental Release Measures	
Flush away with copious amounts of water.	
7. Storage & Handling	
HANDLING: General good work practices.	
STORAGE: 5 Liter and 200 Liter containers in either metal or plastic.	
Store below 45°C as higher storage temperatures reduce the effectiveness of the product.	
Should not be stored close to caustics or strong bases.	
8. Exposure Controls/Personal Protection	
GENERAL PROTECTION: Follow good industrial practices of hygiene and care.	
RESPIRATORY PROTECTION: None	
HAND PROTECTION: None, although the use of rubber gloves is suggested.	
EYE PROTECTION: None, although the use of protective eyewear is recommended under normal GMP's	
SKIN PROTECTION: None	
9. Physical And Chemical Properties	
PHYSICAL STATE: Liquid	
COLOR: Colorless - pale amber	
ODOR: Mild	
ODOR THRESHOLD: No test data available	
FLASH POINT: None	
VISCOSITY: @ 40 °C 2.3373 cst	
SPECIFIC GRAVITY: @20°C /68°F=1.005-1.008 @ 20°C	
pH: Full Strength. 3.0 to 4.0	
VAPOR DENSITY: None	
LOWER EXPLOSION LIMIT: None	
SOLUBILITY IN WATER: 100% in water	

Bio-Organic Catalyst, Inc., A Wholly Owned Subsidiary Of Neozyme International, Inc.

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FLASH POINT: Closed Cup >93 °C
 FLAMMABILITY (SOLID, GAS): None
 FLAMMABLE LIMITS IN AIR LOWER: No test data available.
 UPPER: No test data available.
 AUTO IGNITION TEMPERATURE: No test data available.
 VAPOR PRESSURE: < 0.01 mmHg @ 20°C Calculated
 BOILING Point (@760 mmHg): > 100°C
 VAPOR DENSITY (air = 1): >1 Calculated
 FREEZING POINT: See Pour Point
 MELTING POINT: Not applicable
 POUR POINT: 2.22°C or (+28 °F)
 SOLUBILITY IN WATER (by weight): Visual Completely soluble.
 DECOMPOSITION TEMPERATURE: No test data available.

10. Stability & Reactivity

NO KNOWN REACTION TO OCCUR

CONDITIONS TO AVOID: Temperatures above 45°C., pH below 3.0 and above 9.5 will affect the quality and condition of the product. Strong caustics and strong bases may affect the quality and condition of the product.

11. Toxicological Information

ORAL LD50: Levels of 5,000 mg/kg: No Effects.

OCULAR: Primary Ocular-Albino Rabbits-Levels of 1,000 mg/kg for 24hours: No effects; Non-Toxic; "No Warning Required".

ACUTE TOXICITY: LC50-Level of 10,000 mg/kg: No effects after 168 hours; Non-Toxic; "No Warning Required."

SKIN TESTS: Draize Test-Dermal score of .38; Non Irritant; "No Warning Required." Repeated Insult Patch - No indication of irritation or sensitization; Non Irritant; "No Warning Required."

INHALATION TESTS: Results. No possibility of Irritation; Non Irritant; "No Warning Required."

LONG-TERM STUDIES: No recorded side effects since 1971.

12. Ecological Information

This is a totally safe and efficient biocatalytic degrader of organic waste materials. The product causes contaminants and other organic matter to eventually biodegrade, thus returning to carbon dioxide and water. When disposed of in sewage and drainage systems, the product aids in the breakdown of pollutants such as oil.

OECD BIODEGRADATION TESTS: For this family of materials: OECD Guideline for Testing of Chemicals, 302 B, Inherent Biodegradability: Zahn-Wellens/EMPA-Test Adopted: July 17, 1992, as well as German Standard Procedures for Water, Waste Water and Sludge Testing, Test procedure with water organisms (Group L) Determination of the biodegradability, Static Test (L25), DIN 38 412, Part 25

BIODEGRADATION EXPOSURE TIME METHOD: > 58% -48 HRS OECD 302B TEST

Closed Bottle Ready Biodegradability Test Reference: Environmental Protection Agency - Toxic Substances Control Act, Code of Federal Regulations Title 40, part 796, section 3200 (40 CFR 796.3200)

BIODEGRADATION EXPOSURE TIME METHOD: > 75%-28 Days

ENVIRONMENTAL FATE: Persistence and Degradability: The material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

ECOTOXICITY: The material is non-toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

FISH ACUTE & PROLONGED TOXICITY: For this family of materials: LC50, fathead minnow (*Pimephales promelas*), static, 96 hrs 100 % survival rate at 1ppm

AQUATIC INVERTEBRATE ACUTE TOXICITY: EC50, water flea *Daphnia magna*, 48 hrs, Toxicity, Not Detected.

TOXICITY TO MICRO-ORGANISMS: EC₅₀ *Vibrio fischeri* (*Photobacterium phosphoreum*), *Pseudokirchnerjella subcapitata* (*Selenastrum capricornutum*) Toxicity: Not Detected.

MUTAGENICITY TEST: The organisms *P. subcapitata* and *D. magna* are continental water organisms. *V. fischeri* is an organism that can be involved for both continental water and marine water samples. *Salmonella typhimurium* is an organism to evaluate sweet water and its results can be applied to the environment and extrapolated to humans. *Salmonella typhimurium*: Mutagenicity: Not Detected

MARINE ACUTE TOXICITY: The marine invertebrate species, *Mysidopsis bahia* (*Americamysis bahia*) and the marine vertebrate species, *Menidia beryllina* were used in the tests. For the marine invertebrate species, 48-Hour Acute *Mysidopsis bahia* survival test results : LC-50 -316.23 (ppm), The 96-Hour LC-50 (concentration at which 50% mortality is expected to occur, *Menidia beryllina* survival data, was 203.04 (ppm)

13. Disposal Considerations
"IN ACCORDANCE WITH NATIONAL AND LOCAL LAWS AND PRACTICES" Flush down sewage or drainage systems with copious amounts of water.
14. Transport Information
DOMESTIC ROAD/RAIL: Unrestricted SEA: Unrestricted AIR: Unrestricted INTERNATIONAL ROAD/RAIL: Unrestricted
15. Regulatory Information
OSHA Hazard Communication Standard This product is "Not A Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312: Immediate (Acute) Health Hazard: No Delayed (Chronic) Health Hazard: No Fire Hazard: No Reactive Hazard: No Sudden Release of Pressure Hazard: No
US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) To the best of our knowledge, this product does not contain chemicals at levels that require reporting under this statute.
California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels that would require a warning under the statute.
US. Toxic Substances Control Act All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
The information contained in this Safety Data Sheet does not constitute the user's own assessment of the workplace risks as required by other health and safety legislation.
16. Other Information
The product should not be used for purposes other than those shown in Section 1 without first referring to the supplier and obtaining written instructions. As specific conditions of use of the product are outside of the supplier's control, the user is responsible for ensuring that the requirements of relevant legislation are complied with. The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications. This MSDS will be revised and updated as requirements occur. Should further information and relevant advice be required, contact Bio-Organic Catalyst, Inc. @ Info@bio-organic.com PHYTO-ZYME® is manufactured under U.S. Patent No.5,879,928.