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FIBREZYME™ LWT 500

Product #934

(Considerations in applications for Wastewater Treatment)

I. INTRODUCTION:

FIBREZYME™ LWT 500 is a powdered amylase enzyme that will hydrolyze waste material containing starch to soluble lower molecular weight polymers under the proper processing conditions. **FIBREZYME™ LWT 500** is a stable form of amylase operating between a pH range of 6 – 7 and temperature of 45°C – 60°C (113°F – 140°F).

II. PHYSICAL PROPERTIES:

Appearance: Tan to cream Powder (Note that color does not affect or reflect activity.)
Odor: Slight fermentation odor
pH: 4.5 ± 1.0 when diluted
Activity: 30,000 TAU/g

III. PRODUCT CAPABILITIES:

When run as directed in this bulletin and with the support of your Dyadic International (USA), Inc. sales/technical representative, **FIBREZYME™ LWT 500:**

1. Transforms starch into dextrose and simple sugars which are readily degradable by a mill's aerobic water treatment system. Note, it is necessary to have a water treatment system capable of degrading the sugars resulting from the LWT 500 treatment.
2. Increases the BOD/COD ratio by increasing waste biodegradability. Soluble lower molecular weight polymers in wastes are more easily biodegradable than non-soluble material.
3. Increases total BOD and COD removal in biological wastewater treatment systems. As starch waste material is solubilized, it is more efficiently digested by aerobic and/or anaerobic bacteria in biological reactors.

FIBREZYME™ LWT 500 provides the necessary enzymes to hydrolyze starch to readily degradable materials in aerobic environments. LWT 500 does not decrease the cellulose/hemicellulose content of a mill's waste stream.

IV. PROCESSING CONDITIONS: GENERAL

FIBREZYME™ LWT 500 will function over a pH range of 6 – 7, making it adaptable to your process conditions. **FIBREZYME™ LWT 500** will function from 45°C – 60°C (113°F – 140°F). Higher operating temperature results in higher enzymatic activity providing lower enzyme dosage for a particular application. We recommend an operating temperature of 55°C – 60°C (131°F – 140°F).

V. RECOMMENDATIONS FOR USAGE:

1. FIBREZYME™ LWT 500 is added at a dose between 0.5 – 2.5 kgs/ton of starch. The enzyme is dosed at the inlet channel of the wastewater treatment systems in order to achieve maximum retention time. Mixing of the enzyme through a pump suction or turbulent mixing is necessary.
2. FIBREZYME™ LWT 500 is designed to break down starch and therefore should not be used in the papermaking process. It is recommended that it be used only in the waste treatment system where it is not recycled back to the paper machine unless it is inactivated by one of the methods mentioned in Section VII.
3. It is recommended that lab studies be performed to insure that the secondary treatment systems can handle the additional BOD load resulting from the enzymatic degradation of the cellulose fiber.
4. Optimal enzyme performance can be maintained with controlled process pH between 6 and 7. We recommend an operating temperature of 55°C – 60°C (131°F – 140°F).

VI. STORAGE CONDITIONS/ACTIVITY:

FIBREZYME™ LWT 500 must be kept in a dry, well closed container, away from direct sunlight. LWT 500 will retain its activity for at least 3 months at 37°C (99°F) and at least 12 months at 25°C (77°F) or below, however, storage at 30°C (86°F) or above for prolonged periods is not recommended. Do not let freeze.

VII. INACTIVATION:

FIBREZYME™ LWT 500 can be inactivated by raising the pH above 11.0 or temperature above 75°C (167°F) or a combination of the two. Oxidizers such as hypochlorite, chlorine dioxide, and peroxide can also effectively inactivate the enzyme.

VIII. PACKAGING:

FIBREZYME™ LWT 500 is packaged in 50 kg fiber drums.

IX. TECHNICAL SERVICE:

Information covering specific applications for this product is available from your Dyadic International (USA), Inc. sales/technical representative. We will work with you to enhance processes and solve problems, in addition to assisting you in achieving the end result desired. Call your sales/technical representative for any questions, comments, or help that you need!

Nothing disclosed is to be construed as a recommendation to use our products in violation of any patents. The information presented is believed to be accurate. However, said information and products are offered without warranty or guarantee, except as to the composition and purity stated herein since the ultimate conditions of use and variability of the materials treated is beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. The goods described herein are sold as is and with all faults. The seller specifically disclaims all warranties in connection with the sale of the goods, both express and implied, including, without limitation, the warranties of merchantability and fitness for any particular purpose, as those terms are defined in the uniform commercial code of Florida. The seller shall not be liable for any incidental or consequential damages whatsoever.