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FibreZyme[®] LDI

Product #924

Patent #5,811,381

(Considerations in applications for Pulp and Paper Processing.)

I. INTRODUCTION:

FibreZyme[™] LDI is an enzyme complex that selectively modifies cellulosic fibers to aid in the separation of ink and other debris from recycled papers. **FibreZyme[™] LDI** is a stable liquid formulation designed to function across a broad range of pH 6.0 – 8.0 and temperature 25°C – 60°C (77°F – 140°F).

II. PHYSICAL PROPERTIES:

Appearance: Medium to dark amber liquid (Note that color does not affect or reflect activity.)
Odor: Slight fermentation odor
pH (as is): 4.5 ± 1.0
Density: 1.15 – 1.25 g/ml

III. PRODUCT CAPABILITIES:

When applied as directed in this bulletin, **FibreZyme[™] LDI** can help to accomplish the following:

1. Enhance de-inking of recycled fibers. **FibreZyme[™] LDI** facilitates the release of inks (impact and non-impact) from fiber surfaces, enhancing washing and flotation processes. The resulting pulps will be brighter and whiter.
2. Enhance the drainage rates of recycled fibers.
3. Enhance fiber strength, reduce refining energy requirements, and increase inter-fiber bonding and paper strength properties.
4. Decrease chemicals needed for deinking and cleaning recycled pulps.

IV. PROCESSING CONDITIONS: GENERAL

FibreZyme[™] LDI will function from a pH of 6.0 – 8.0, making it a product very adaptable to most existing deinking and flotation processes. This product is best recommended for neutral de-inking.

FibreZyme[®] LDI will function from 25°C – 60°C (77°F – 140°F). Higher operating temperature results in higher enzymatic activity allowing lower enzyme dosage for a particular application.

V. RECOMMENDATIONS FOR USAGE:

1. **FibreZyme Ô LDI** is added at a dosage between 100 – 200 grams/ton (metric ton) of dry pulp. Dosage will depend on the process temperature, pH and retention times. The enzyme is typically dosed at the hydra-pulper.
2. **FibreZyme Ô LDI** can be dosed manually in a batch-by-batch process or can be dosed automatically by using a dosage pump.
3. Under normal operating conditions, in addition to brighter and whiter deinked pulp, the use of **FibreZyme Ô LDI** will result in lower refiner loads, higher refiner throughput, and reduced paper machine steam consumption. It may also be necessary to re-calibrate refiner loads against final sheet properties, not pulp freeness, as refiner curves may become modified reflecting the product's beneficial activity.

VI. STORAGE CONDITIONS/ACTIVITY:

Product shelf life of **FibreZyme Ô LDI** is a minimum of one year, if stored in a controlled environment at 25°C (77°F) or lower. Do not allow product to freeze.

VII. INACTIVATION:

FibreZyme Ô LDI can be inactivated by raising the pH above 11.0 or temperature above 71°C (160°F) or a combination of the two. Oxidizers such as peroxide can be used to inactivate the enzyme. In the pulp and paper process, **FibreZyme Ô LDI** is inactivated in the dryers at the paper machine. No residual enzymatic activity will be found in the manufactured paper.

VIII. PACKAGING:

FibreZyme Ô LDI is packaged in 60 kg and 240 kg polyethylene drums, and 1000 kg totes.

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!

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