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FibreZyme™ PBL 100 Product #955

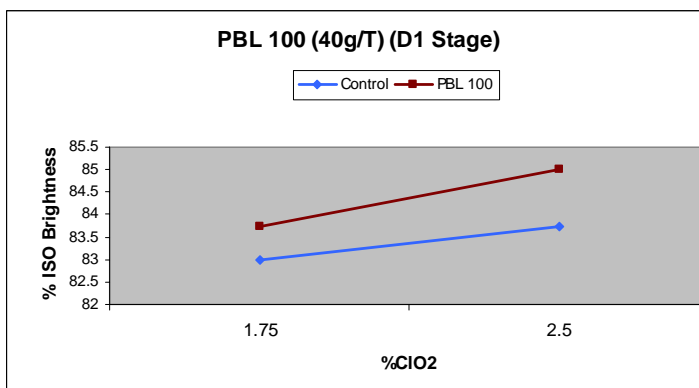
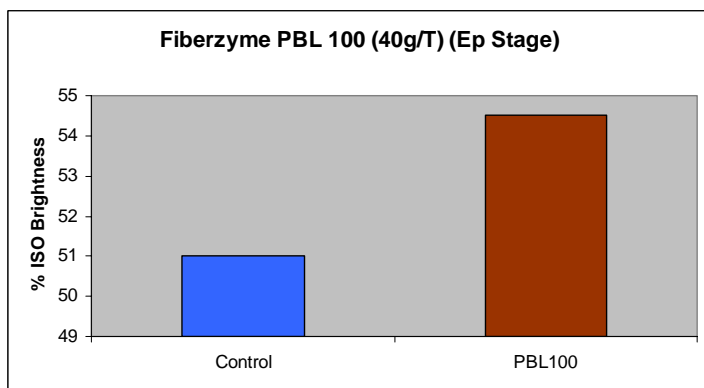
(Considerations in applications for Pulp and Paper.)

Description:

FibreZyme PBL 100 is a preparation intended for use in biobleaching of pulp. **FibreZyme PBL 100** is a powdered form and will operate between a broad range of pH (4.5–9.0) and temperature 25°C–60°C (77°F–140°F).

Product Benefits:

1. Facilitates the bleaching of kraft, soda and sulfite pulps by loosening the wood fibres in the pulp structure and thereby enhancing lignin extraction.
2. Reduces chlorine dioxide, chlorine, and caustic consumption resulting in lower cost and lower waste water demands including lower COD and BOD.
3. Increases bleachability of virgin pulp which allows higher levels of brightness to be achieved.
4. Eliminates cellulose fines that are present in some non-wood pulps such as sugar cane bagasse, bamboo, straws and grasses. These fines unnecessarily consume bleaching chemicals, decrease paper strength properties, and cause dusting problems during paper rolling and conversion.



Properties of FibreZyme PBL 100:

Appearance: Tan to light yellow powder (Note that color does not affect or reflect activity.)
Odor: Slight fermentation odor
Solubility: Miscible with water
pH (1% solution): 4.5 ± 1.0

Effect of Temperature:

FibreZyme PBL 100 will function from 25°C–75°C with an optimum of 50°C–60°C.

Higher operating temperature results in higher enzymatic activity providing lower enzyme dosage for a particular application.

Effect of pH:

FibreZyme PBL 100 will function from a pH of 4.5–9.0 with an optimum of 7.5–8.5.

Dosage:

FibreZyme PBL 100 is added at a dosage between 20–80 g/ton (metric ton) of dry pulp. We have found a general optimum at 40 g/ton. Normally, the enzymatic treatment is performed at the brownstock storage tank(s). The enzyme is dosed at the outlet channel in the last washer/decker after pulp digestion.

As there is an inverse relationship between reaction time and enzyme dosage to obtain a maximum bleach effect, tank levels where enzymatic treatment is performed must be kept at the highest possible level. Contact your representative for further assistance in determining optimal dosage for your mill.

Termination:

FibreZyme PBL 100 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 and hypochlorite can also be used to inactivate the enzyme. In the pulp and paper process, **FibreZyme PBL 100** is inactivated in the dryers at the paper machine or pulp dryer. No residual enzymatic activity will be found in the manufactured paper.

Packaging:

Standard package size for **FibreZyme PBL 100** is 30 kilogram plastic drums. Alternate custom packaging is available upon request for smaller or larger volumes.

Handling and Safety:

FibreZyme PBL 100 can be irritants to some individuals; avoid contact with skin and eyes. Take necessary precautions to avoid breathing dust. Refer to product MSDS for further safety information. Always close drum after opening.

Storage:

FibreZyme PBL 100 retains more than 90% activity after four months when stored at 25°C (77°F) out of direct sunlight and in the original, closed container. **FibreZyme PBL 100** also retains more than 90% activity after 1 month when stored at 38°C (100°F). Do not let freeze.

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.