



Report of Mill Defibering Evaluation

Background:

Fiber-Catalyst™ is an organic complex specifically designed for the repulping of recycled paper and raw material that exhibit resistance in the pulping process. The product is capable of hydrolyzing fibers under the existing conditions of a paper mill.

Fiber-Catalyst™ allows wetting of the recycled paper in a way similar to that occurring in nature. There is no need to use alkaline chemical agents such as soda. This allows to separate the fiber, converting it to a more free and fluid state. In the paper machine, pulp flows more freely, allowing the operator to obtain better formation in the sheet quality. Taking the fiber to this state, allows the pulp to dry and drain faster, reducing steam consumption. Fiber-Catalyst™ allows the operator to increase speed of the machine to obtain higher productions, if it is mechanically possible, or increase resistance values at the same machine speed.

The following report shows results of the performance of the product Fiber-Catalyst™, designed for defibering, and conditioning, of the fiber in the production process. The product is added directly into hydra-pulpers #1 and #4, at a continuous dosage of 4.8 ml/min (150 g/ton). The trial started on May 18 at 18:00 hr.

Development of the evaluations:

During the evaluation the mix of raw material was:

Empaques: 30%, DKL Tepoztlán: 50% y DKL Coplasur: 30%

DKL n this plant is considered as material difficult to pulp due to its components.



		Fiber %	Trash%	Humidity%
No product	may-18	13.42	24.12	62.46
NTFC	may-18	10.18	24.98	64.84
NTFC	may-18	11.21	16.83	71.96
NTFC	may-18	6.22	26.01	67.77
NTFC	may-19	6.14	15.08	78.78
NTFC	may-19	4.24	42.91	52.85
NTFC	may-19	4.12	23.86	72.02

Graphics of performance

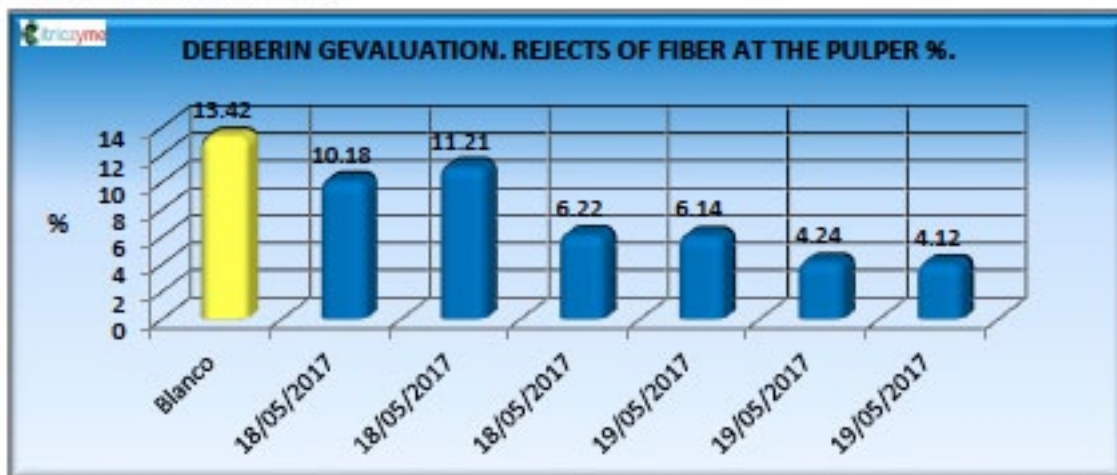


Grafico 1.0 SCT

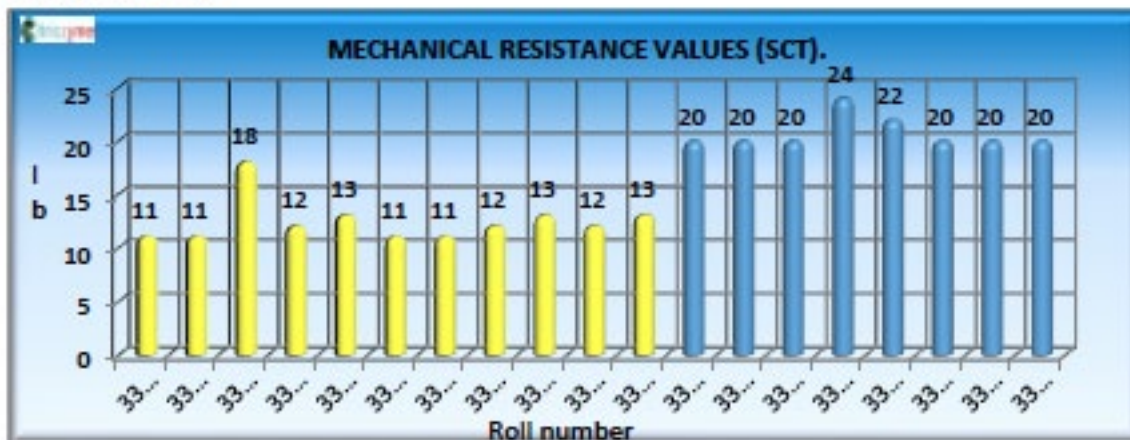


Grafico 1.1 Tear test in machine direction

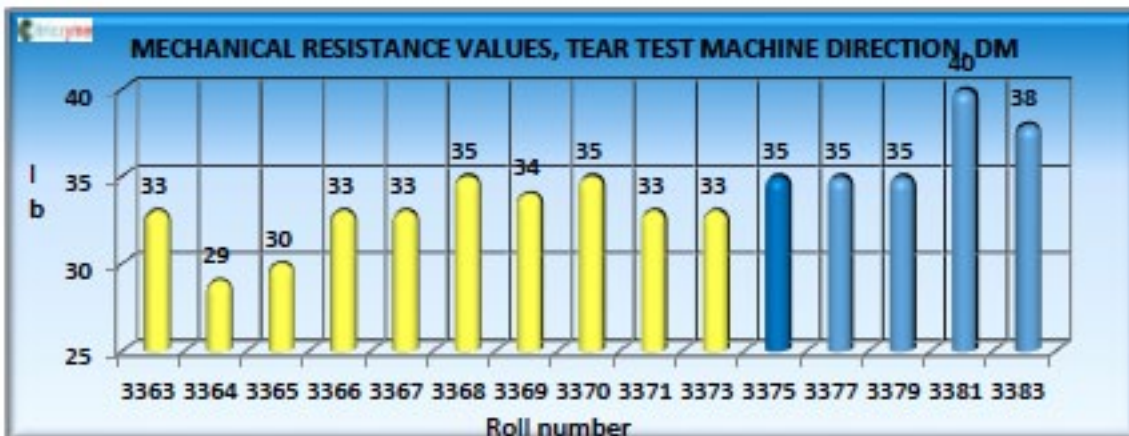


Grafico 1.2. Tear test in transversal direction.

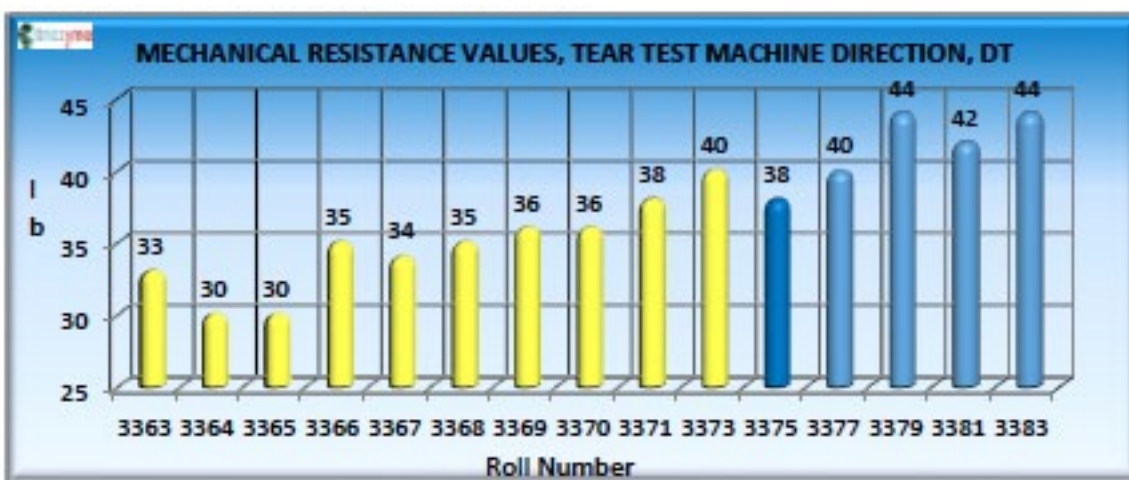


Grafico 1.3. Freeness Tank 2.

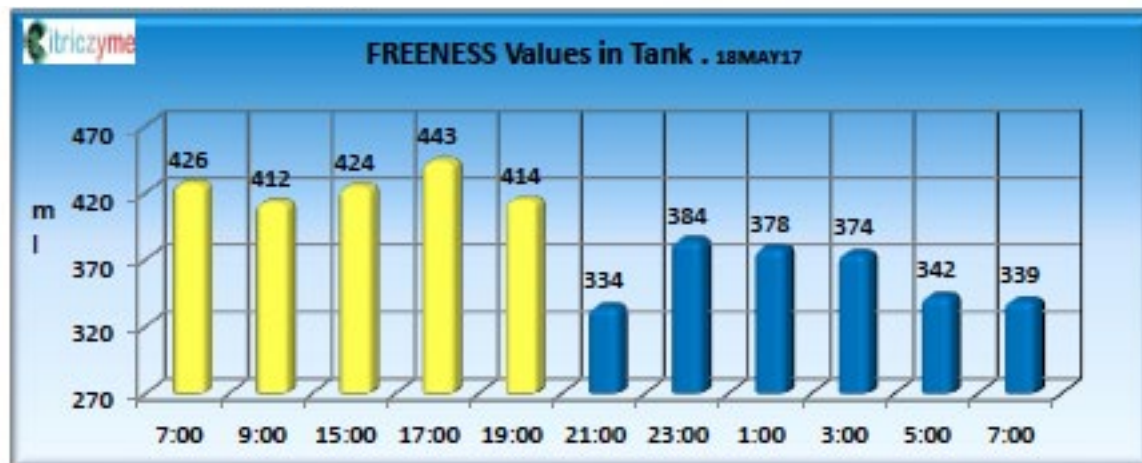
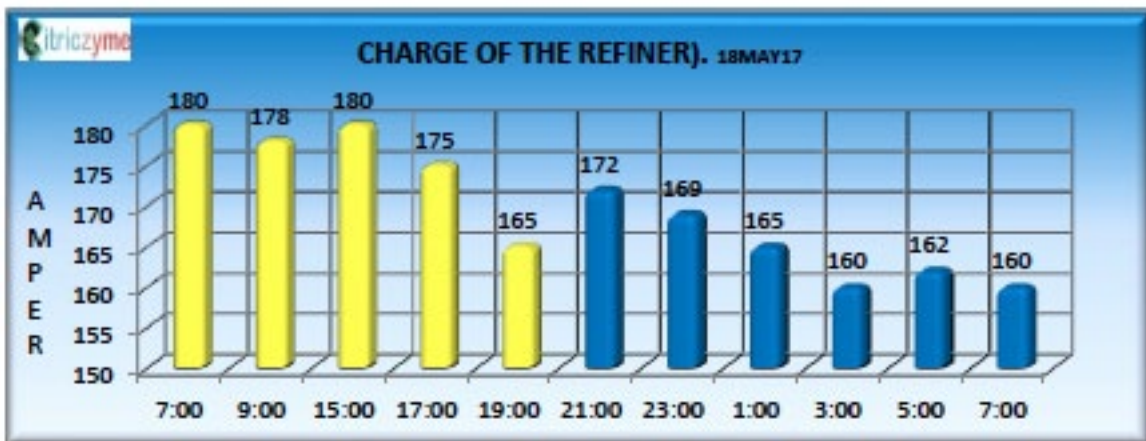
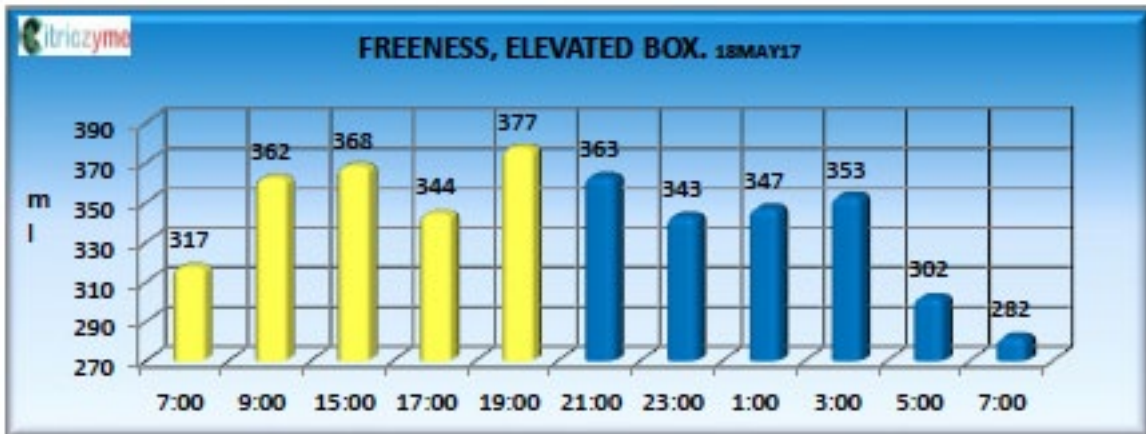


Grafico 1.4. Freeness Elevated box.



There was no negative interaction with any other product used in the machine.

Conclusion:

With the use of Fiber-Catalyst™ the following improvements are obtained:

1. Reduction of fiber rejects percentage. In this evaluation obtained reduction was 69.3%.
2. Higher resistance values are obtained, measured as SCT and tear in transversal and machine direction.
3. Improvement in the refining process reducing freeness values.
4. Reduction in the energy used at the refiner as a result of biochemical refining.
5. Less stops for cleaning the pulper.
6. When improving and reducing pulping time, higher pulp tanks levels are obtained, allowing more production in the machine.