

BENCH SCALE TESTING OF BOC ORGANOCATALYST AT A PULP & PAPER PLANT IN RUSSIA

Site: Suchonskiy Pulp and Paper. Sokol, Vologda. Russia – On-site Laboratory.

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Test Commissioner: East Coast Distribution (USA) on behalf of the Manufacturer: Bio Organic Catalyst, Inc. (USA)

Study Time: December 13, 2016 – January 9th, 2017.

Preparation: Samples of white water was collected from headbox and wire box of the paper mill. The product, EcoSystem Plus[®] was diluted with distilled water in 1:30 ratio. All tests were carried out on the white water and the mass suspension without the addition of biocides.

Test 1. A 2-litre sample of white water was equally poured into two glass beakers. A metal plate (control plate – X, treated plate - Y) was placed into each. A diluted solution of EcoSystem Plus[®] was added into Cylinder 2 at a rate equal to 100ml per tonne of pulp. The exterior appearance of the plates was monitored during the following 20 days of the study.

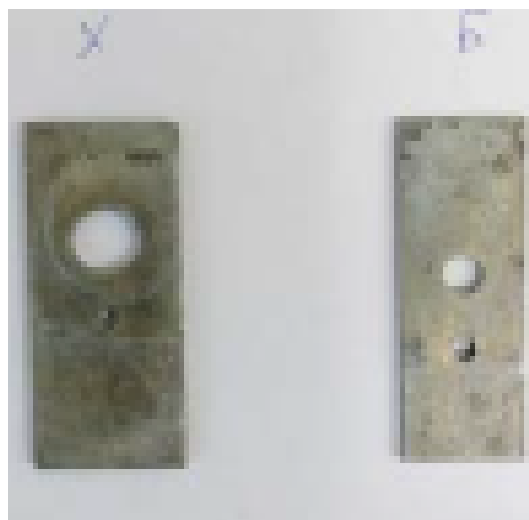
Picture 1 shows both plates prior to immersion in the beakers.

Picture 2 shows the plates after 20 days immersion.

PICTURE 1



PICTURE 2



Test 2. To control biological contamination on a heat exchanger of a distiller. The distiller's heat exchanger was filled with diluted solution of EcoSystem Plus® in the ratio as described above.

The interior of the heat exchanger was monitored during the following 20 days.

Picture 3 shows the appearance of the heat exchanger before the test, and on Picture 4, the same heat exchanger after 20 days of the testing.

PICTURE 3



PICTURE 4

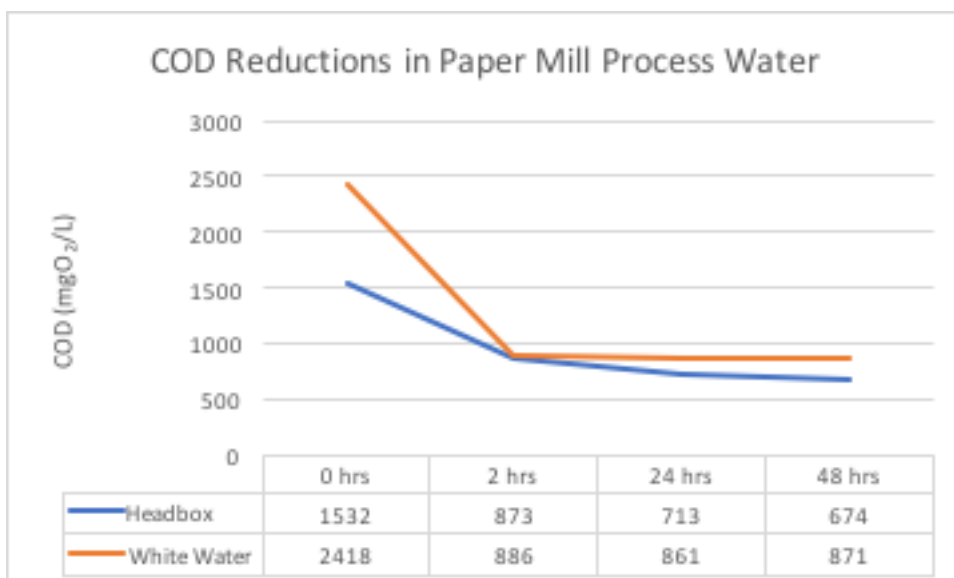


A clear distinction is evident showing the removal of biofilm by EcoSystem Plus

Test 3. COD was determined to be an indicator of the reduction in organic wastes in white water. 2 samples were used, one collected from the Headbox and the other collected from the white water prior to recycling. Samples were not agitated.

EcoSystem Plus was added to the white water at a rate equal to 100ml per tonne of pulp. COD was analysed after 2 hours, 24 hours and 48 hours and shown in Chart 1

CHART 1



A clear reduction of COD of 56% and 64% in the headbox and recycle water respectively. The bulk of the reduction is clearly in the first 2 hours demonstrating the rapid effectiveness of EcoSystem Plus in reducing organic load in the white water. From experience it is expected that the 24 and 48 hour results would reduce further with aeration/agitation.

Conclusion:

From the bench scale tests, it is clear the use of EcoSystem Plus in paper production has the potential to improve cleaning and remove biofilm thereby reducing maintenance down time and stickies. The rapid reduction in COD allows for greatly recyclability of the process water, reducing fresh water use, and reduce the load on the waste water treatment system.

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