CASE STUDY

eROI℠ by Ecolab

Pulp Wash Intelligence Delivers Consistently Clean Pulp at Integrated Kraft Mill by Improving Customer's Brown Stock Washing Operations and Evaporator Efficiency

BACKGROUND

An integrated kraft mill producing 1,500 TPD in North America was looking to improve and automate its brown stock washing operations. Clean pulp is crucial to optimized production and the mill saw value in the ability to monitor the dirtiness of incoming pulp. Not all contaminants are the same and some are easier to remove than others (inorganic vs. organic). Sensory limitations mean mills rely on manual tests and guesswork to tell them how much water and wash aid to use. Poor controls can lead to variations in pulp quality and poor downstream operations.

This mill wanted to use Nalco Water's Pulp Wash Intelligence to improve this important part of their pulping operations. The system was installed on all wash lines.

SOLUTION

Pulp Wash Intelligence is a digitally enabled platform that maximizes pulp washing performance by using a combination of sensors, software and control algorithms. These work together to carefully monitor the dirtiness of incoming pulp and inorganic and organic loading to adjust automatically for real-time control of wash aid and shower water.

This solution provides a novel technology of total load measurements for better control and optimization of washing stages using:

- Sensors capable of real-time measurement in pulp and liquor process (solids range)
- Novel ability to provide organic and inorganic fractions
- Feed-forward control of wash aid and dilution factor based on incoming load when positioned ahead of wash operations
- Patent applied for use in defining organic/inorganic fractions and process controls

ANNUAL SAVINGS

ENERGY

Reduced consumption by 90,000 MMBTUs

GREENHOUSE GASES

Reduction of 5,100 tons

TOTAL VALUE DELIVERED

$450,000

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RESULTS

Nalco Water and the customer partnered to install Pulp Wash Intelligence on all wash lines and integrate it into mill operations.

The mill saw the following value:

- A 1% increase in black liquor solids equating to annual energy savings in the evaporator of 30,000 MMBTUs per line and 90,000 MMBTUs per mill.
- The energy savings from the evaporator equates to an annual reduction in greenhouse gases of 1,700 tons per line and 5,100 tons per mill.

All these benefits yield a Total Value Delivered of $150,000 per line and $450,000 for the mill.

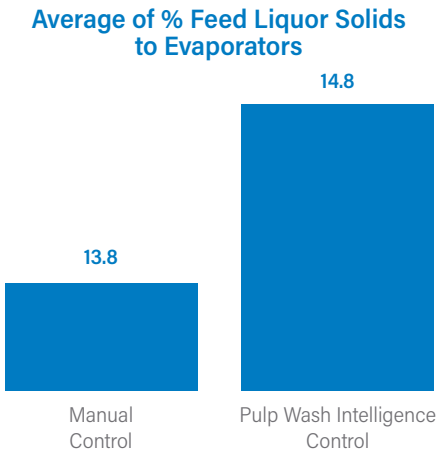

FIGURE 1: The average percentage increase of liquor solids using Pulp Wash Intelligence over manual control

CONCLUSION

Nalco Water's Pulp Wash Intelligence improved the customer's brown stock washing operations and evaporator efficiency by monitoring incoming pulp and remaining in real-time control of wash aids and shower water.

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