



When it's Difficult to Identify Entrained Air, How Can You Address it?



The Challenge:

Air's Negative Impact on Process Variability



In brown stock washing, it's no secret that entrained air reduces drainage—and as a result efficiency—leading to higher total cost of operations and reduced pulp quality. But it's not just growing customer demands and margin pressures creating urgency to solve this problem. You're also under heightened environmental and regulatory scrutiny to reduce water usage, as well as your discharge to landfills and waterways. Bottom line: you need to produce more, higher-quality pulp while balancing chemical and energy usage and costs.

Yet many mills simply accept the air-related variability they see. They might try to infer what air is doing through measurements like washer speed, efficiency and final conductivity, but these are imprecise, lagging indicators.

And if mills are pushing chemistry or water in response, they're doing it based on guess work—which can lead to more variability, dirty pulp or low weak black liquor solids. Others may resort to capital investments, such as a new washer or evaporator train, because they believe there's no other alternative.

In either case, capital and resource costs increase without a near-time opportunity to capture ROI. All the while, the original variation remains unsolved. As a result, mills may not meet market demand and quality expectations, which could damage their quartile standing—and the business's overall market share.



The digital revolution could help the paper and forest products industry **reduce the total cost base** by as much as **15%** and **improve overall equipment effectiveness** of existing technologies by 5%.¹



The Solution:

Eliminate Entrained Air as a Disruptor

High entrained air levels create numerous problems in brown stock washing. But if your operators don't know how much air is in the system, they can't eliminate it as an issue. They have to guess how much defoamer to add, often overfeeding or underfeeding as a result. Or they may manually adjust washer speeds, tank levels or other system parameters in hopes that they address the situation. In the end, you'll waste resources, capital and time making blind adjustments that aren't rooted in fact.

When you implement Buckman's ECHOWISE®, you'll eliminate entrained air as a disruptor, so you can build reliable, accurate, real-time process control.

Here's how you can make it happen...

Identify, Quantify and Correlate Real-Time Air Variations



Most mills don't measure entrained air because they can't do it consistently or accurately enough to get meaningful data.

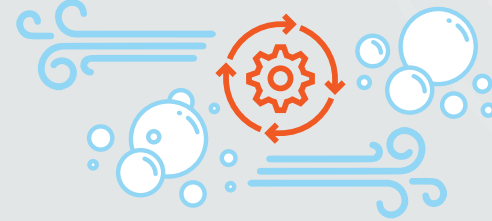
Because ECHOWISE® uses sonar-based technology that doesn't rely on intermittent sampling, your operators can capture direct, accurate readings of entrained air in less than two-second increments. This means you can identify and quantify real-time air variation—its peaks and valleys—and correlate those numbers to such related process variables as vat levels, washer speeds, headbox pressures, conductivity and more.

And you can use this data to determine an acceptable entrained air target/benchmark at which your mills should run for optimal quality, throughput and cost. Ultimately, you'll be better positioned to control your washing processes, so you can improve overall performance while rapidly responding to, or even preventing, upset conditions before they wreak havoc downstream.

ECHOWISE utilizes **sonar-based technology** that captures direct, accurate, real-time readings of entrained air.



Automate Defoamer Metering and Proactively Manage Entrained Air



Fully automated brown stock washing has proven to be difficult due to the many variables influencing the process. This can cause operators to bring their own biases to how chemistry and water should be applied to control air or improve washing. As a result, you're going to experience as many variables in your processes as you have people interacting with them.

Once you've used ECHOWISE® to create a target for your entrained air, operators can put it into closed-loop control to automate defoamer metering to the system—at the exact time it's needed—helping them proactively keep air levels within acceptable parameters.

This has a number of positive impacts on your people, resources and operations.

You'll not only eliminate operator-biased variability, you'll free them from manual intervention and give them more time to focus on strategic work. You'll run your washers with greater efficiency, helping you strike a better balance between pulp cleanliness and water usage. Finally, because you're controlling variability throughout the process, you'll improve the throughput and quality of your pulp to better meet customer demands.

ECHOWISE creates an
**automated, continuous
control response** for
keeping entrained air levels
within acceptable parameters.

When you implement ECHOWISE®, you'll...



Rapidly respond to—and potentially prevent—upset conditions



Improve the overall performance of your washing processes



Increase pulp throughput and quality to better meet customer needs—across all mills where ECHOWISE® is installed

Eager to get started?

Check us out online to learn more about how ECHOWISE can help your mill.