

Control the foam, boost the conversion—automatically. Improve ethanol production profitability with AckumenTM ECHOWISE[®] Pro for visible fermentation

It's a persistent problem. Since CO₂ is a byproduct of fermentation, foam is naturally formed in the fermentation process. Unfortunately, controlling that foam typically means chemistry overdosing and overspending. And relying on slow lab tests to monitor your fermentation means you are always playing catch up. But now there is a way to proactively control foam, reduce chemistries and increase ethanol process visibility and efficiency.

Welcome to **Ackumen ECHOWISE Pro**, a new, powerful digital technology that tracks CO₂ formation, accurately determines the amount of foam present in your fermenter, adjusts



chemistry as needed, and provides you with actionable insights to help you maximize sugar conversion and profitability.



Save with a true innovation in precision dosing.

Ackumen ECHOWISE Pro features our patented ECHOWISE monitoring system, which uses sound waves to precisely measure gas volume fraction in your system in real time. This non-invasive sonar solution sends measurements that indicate foam formation to the Ackumen platform which then automatically adjusts the dosage of foam control chemistries according to actual process needs. No waiting for lab results. No guessing about chemical additions. You'll optimize foam control while significantly reducing chemical consumption and costs.

Get the valuable insights you need to excel.

While automatically regulating dosage, Ackumen™ ECHOWISE® Pro also uses the cloud-based data it receives to deliver important insights to you in simple, easy-to-read, actionable system visualization graphics, alarms and notifications via the Ackumen platform's remote process monitoring system.

What's an Insight?

An insight is the detection of a pattern of anomalous behavior; the analysis of its root cause in measurable, rational terms;

and finally, a recommended course of action to resolve the issue. That's the power of Ackumen.

Whether at your desktop or on your mobile device, you'll know in real time the status of your foam control system. You'll clearly see how your process indicators are behaving. And you'll know at a glance whether an action is needed now or later on.

With Ackumen, you'll be able to eliminate the highs and lows associated with process variability and operate with greater stability, productivity and efficiency.



Relax with expert support.

Ackumen ECHOWISE Pro includes 24/7 fermenter monitoring and analysis by our Insights Lab. Our team of experts can deal with events as they happen, assess every alarm, eliminate false ones and let you know if any action from you is required. You'll experience fewer process interruptions, eliminate unnecessary service visits, and enjoy real peace of mind.

Manage chemistries better.

Ackumen ECHOWISE Pro can interface with SMART Inventory, which uses IoT sensors to monitor chemical supply in any container, 24/7, and deliver inventory insight to Buckman and to your mobile device. With usage-based alerts, one-click ordering, and more, managing your chemistry has never been so efficient. We can even handle it all for you.

Take ultimate control of foam.

Ackumen ECHOWISE Pro gives you an unprecedented level of control over your fermentation processes. It's the easiest, most precise way to control foam, reduce chemical use and costs and improve fermentation efficiency. All to make your ethanol operation more profitable.

To learn more, connect with your Buckman representative or visit buckman.com.