Buckman™
Chemistry, connected.

Rethinking Biocidal Control

A guide for water treatment service providers on navigating reuse mandates, EPA restrictions, and labor shortages

Evolving Market Forces, Tightening Regulations in Water Treatment

Today's water treatment providers are fighting to maintain quality and profitability while under pressure from multiple angles:

Dirtier Make-Up Water

Water conservation and reuse mandates are intensifying, especially in data centers and industrial campuses where cooling water may recirculate three to ten times. The resulting make-up water is tougher to clear of non-public health biological contaminants like deposits, biofilm, bacteria, and slime.

Fewer Chemical Options

At the same time, EPA re-reviews are pushing lower chemical feed rates and even eliminating harsher actives as an option. Each biocide market exit shrinks the chemical arsenal and increases compliance risk.

Retiring Expertise

Constantly adjusting the chemical program in response to these conditions requires expertise that's getting harder to maintain, as seasoned techs age out of the workforce.

"[Labor market] challenges are exacerbated with roughly one-third of the water sector workforce eligible to retire in the next 10 years…as the technologies that are used in the water sector become more advanced…"

- U.S. E.P.A.[1]

Why Traditional Chemistry Can't Break the Fouling Cycle

Forced to combat more complex water challenges with leaner teams and slimmer margins, most providers stick with what worked in the past: pairing oxidizers with non-oxidizing microbial control programs to keep plate/ATP counts low.

But counts don't tell the whole story, when more than 90% of microbial biofilm* can't be detected free-floating[2]. When slime still visibly coats the towers, equipment, and water surface, customers question whether the cooling system is truly clean.

Biofilm just 20 microns thick can reduce heat transfer efficiency by up to 30%.[3]

Traditional methods of fighting the film can have unintended consequences:

- "Burning it out" by adding even more chlorine- or bromine-based products leads to higher costs, pH swings, and visibly corroded surfaces—without fully eliminating the biofilm.
- When fouling continues, heat can't escape and delta-T drops—along with overall efficiency. Operators blow down as a stop-gap, but eventually are forced to take the cooling tower offline for cleaning.
- Meanwhile, the more techs have to manually intervene with hazardous chemicals on slimy surfaces, the higher the risk of safety incidents.

Hidden, Compounding Costs of Biofilm

Accepting biofilm as inevitable means accepting compounding costs:

Productivity Impacts
Biofilm reduces heat transfer, forcing more blowdowns and chemical cleans to regain efficiency. Each shutdown increases labor demands, eats into margins, and disrupts customer production schedules.

Competitive Disadvantage
Customers don't just look at counts—they look at surfaces. If they still see slime, they doubt the entire program. Competitors offering visibly cleaner systems gain credibility in bids.

Increasing Risk
Reliance on more aggressive oxidizers accelerates corrosion, shortens asset life, and exposes teams to more safety incidents.

The burn-out/blowdown cycle of fighting biofilm can quickly tank margins and profitability—particularly under levelized billing where providers are forced to eat the cost of extra chemistry, time, and water.

Control Fouling Before it Starts

Instead of accepting slime buildup as inevitable, what if providers could control it earlier?

Busan® 77 from Buckman is an EPA-approved polyquat biocide that works synergistically with oxidizers to disrupt biofilm at its root. When paired with a penetrant, it creates a "spatula effect," peeling back protective layers so chemistry contacts and kills organisms faster.

With Busan 77, providers can:

- Reduce reliance on chlorine, lowering pH swings and corrosion.
- Deliver visibly cleaner surfaces and higher customer confidence.
- Cut shut-downs and safety exposures tied to harsh manual cleans.

Unlike other non-oxidizers, Busan 77 is non-foaming, effective at low dosages , broad in pH stability, and easily measurable with a simple field test kit.

One plant cut bleach usage tenfold, raised cycles from five to eight, and **saved 52,700 m³ of water annually**. Adding Busan 77 stabilized the program, reduced cleanings, and freed up tech time for higher-value work.

What actually works isn't chasing slime—it's preventing it.

Link Chemical Innovations to Business Results

When providers focus on controlling fouling before it begins, they can move beyond ATP/plate counts to measure a program's success in metrics customers care about. Here's how:

Stop accepting biofilm as inevitable. Busan 77 is a powerhouse algaecide that, when paired with a penetrant, kills organisms faster and controls fouling. Customers appreciate the reduced chlorine usage and scale buildup on their assets, optimizing performance, as well as the visual cleanliness.

Simplify and stabilize the service model with a program that reduces asset maintenance and safety risks—even with dirtier water. With an easier-to-run program, teams don't have to service sites as frequently and are free to focus on higher-value activities.

Measure success in performance outcomes. Go beyond ATP/plate counts to metrics like delta-T, chemistry/water usage, number of blowdowns/shutdowns, etc. With Buckman's Ackumen™ digital monitoring solution, providers can easily track these KPIs and directly connect process improvements to customers' business performance (e.g., more uptime, reduced costs)—helping create stickier, higher-value relationships.

By partnering with Buckman, providers are able to offer a new chemical approach that disrupts the fouling cycle and delivers better business outcomes.

Deliver Confident, Competitive Service

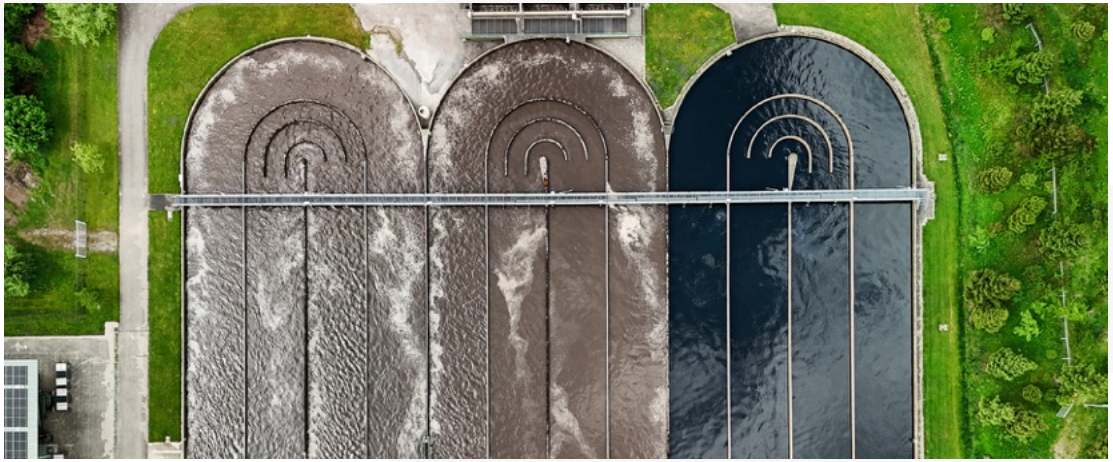
The simple addition of Busan 77 to the chemistry program can transform the water treatment service model.

For technicians: A simpler, safer service program, despite dirtier water.

For customers: Surfaces stay visibly clean, while ATP/plate counts and delta-T both stay stable, leading to fewer shutdowns.

For business: Every account becomes easier to run and more profitable—and providers can directly link service improvements to business value.

It's a **shift from defending your programs to differentiating them.**



Ready to break the non-public health biofilm cycle with Buckman?
Let's Talk.

Need better data insights in order to optimize operations and drive smarter decisions?
Learn more about Buckman's Ackumen™ digital platform.

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[1]https://www.epa.gov/sustainable-water-infrastructure/water-infrastructure-sector-workforce. June 9, 2025. United States Environmental Protection Agency.
[2]Biofilm and Energy Efficiency white paper. https://www.alvimcleantech.com/cms/en/about-biofilm/white-papers/biofilm-energy-efficiency. ALVIM 2025.
[3]Biofilm and Energy Efficiency white paper. https://www.alvimcleantech.com/cms/en/about-biofilm/white-papers/biofilm-energy-efficiency. ALVIM 2025.
** Does not control disease pathogens.*
[4]Always read and follow label instructions.