

DISRUPTIVE INNOVATION IN WATER TREATMENT

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SULAOS system on a tunnel washer at TCS

Midwest laundry operator describes a new system for treating reuse rinse water

By Paul Jewison

I am a 31-year laundry-industry veteran who currently oversees Textile Care Services (TCS) in Rochester, MN. We process 32 million lbs. per year for hospitality and healthcare clients, including the Mayo Clinic. We've partnered with infection-prevention experts at Mayo for more than a decade, and we understand the critical importance of preventing Healthcare Associated Infections (HAIs). As a value-added partner and an extension of the healthcare operation, we're an active advocate for advancing laundry technologies that can help ensure patient safety.

The issue of making sure that our healthcare linens don't serve as a source of HAIs is one that we take very seriously. According to the Centers for Disease Control and Prevention (CDC), Atlanta, of all the surfaces in a hospital, a patient will have the greatest degree of contact with his/her gown and bed linens. That means that TCS must take all measures necessary to minimize the risk of microorganisms traveling back to the hospital via the linens processed at our plant.

We've helped maintain peace of mind at the Mayo Clinic in Rochester with our comprehensive laundry program, which includes the use of EPA-registered AdvaCare™ Disinfectant with kill claims against 10 microorganisms of concern on healthcare linens. But we wanted to do more.

Based on our experience with commercial laundry technology, we know that a unique characteristic of UV light is that a specific range of its wavelengths are categorized as germicidal—i.e., they are capable of inactivating microorganisms, such as bacteria, viruses and protozoa. This ability has encouraged the widespread use of UV light as an environmentally friendly, chemical-free, and highly effective way to sanitize and safeguard water against harmful microorganisms. Additionally, a growing number of healthcare facilities around the country are using ultraviolet light (UV-C) technology to enhance traditional methods of cleaning and disinfecting hard surfaces with chemicals and extended contact time. The concept is proven. Our challenge was to create a system that enables synergies across all commercial laundry wash aisle applications.

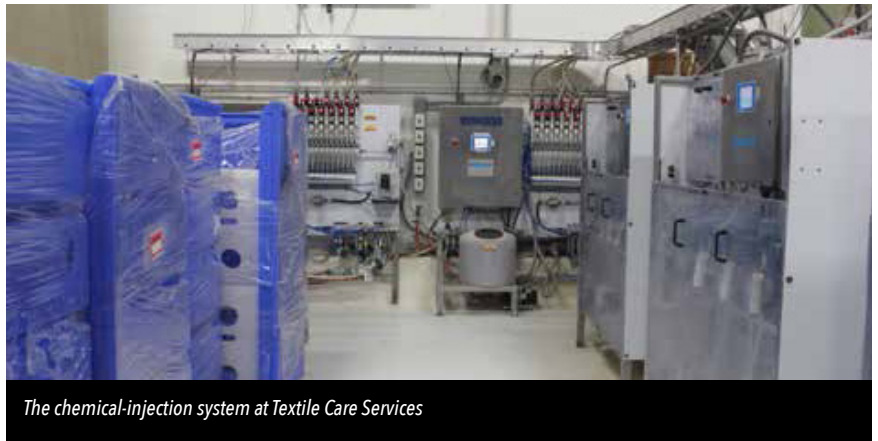
To advance that goal, we partnered with OMNI Solutions, a Baraboo, WI-based company. During a conference in February 2016, Omni Chairman Andrew Rupnow introduced me to ultraviolet light technology for the commercial laundry industry. Together, we developed the Smart Ultraviolet Light Advanced Oxidation System (SULAOS). Our team designed a prototype for commercial tunnel washers used to process healthcare linen at TCS. This was our test site. Before long, we realized the system was producing significant benefits, including odor reduction, water savings and improved levels of whiteness. The linen also felt softer.

At this point, we knew we'd developed something disruptive in an industry that was accustomed to incremental improvements. We believe this system will break boundaries in changing the direction of water re-use for commercial laundries.

HOW IT WORKS

SULAOS pumps water from the tunnel press zone into a holding tank where ultraviolet generators produce hydroxyl radicals to make gas-charged press water. The water then passes through an ultraviolet-light area before it's injected back into the rinse zone. The hydroxyl radicals break down the protective coatings of microorganisms, and any harmful organisms that survive that process are theoretically killed by the ultraviolet light.

Engineered for use with tunnel washers, the system reduces bioburden in the reuse water stream, creating the ideal environment for chemicals to clean. It also improves the cleanliness of tunnel water. This process helps reduce a tunnel washer's total fresh water and energy consumption, and the unique patent-pending UV solution for treating reuse water provides an added layer of protection to improve patient safety and helps ensure that linens are hygienically clean.



The chemical injection system at Textile Care Services

GAINING RECOGNITION

We're busy now because the SULAOS equipment has drawn significant interest from the industry. OMNI Solutions has installed at least a dozen systems around the U.S. and Canada. Data captured across these locations has shown:

- Bioburden reduction in press re-use water
- Up to 30% reduction in fresh water consumption
- Energy savings
- Significant improvements in textile whiteness
- Reduction in odor-causing bacteria
- Extended linen life.

One company that's adopted this technology is North Grand River Cooperative Inc. in Lansing, MI. With 33 years of experience operating a commercial laundry, the team at North Grand River has extensive knowledge and expertise that they use to partner with healthcare customers and their infection-control clinicians.

According to recent CDC data, 1 in 25 patients in the United States will contract an HAI while receiving care at a healthcare facility. The CDC figures also show that HAIs cost the U.S. healthcare industry upwards of \$30 billion annually. What's more, the burden of treatment costs related to HAIs has shifted to hospitals instead of insurers and Centers for Medicare and Medicaid Services (CMS).

In an effort to minimize this risk HAIs, North Grand River installed the SULAOS system. Since then, General Manager Bob Pfeifer has seen significant benefits. "We installed the SULAOS system with UV technology on our 16 mod Lavatec tunnel almost

a year ago," he says. "Water savings are greater than we anticipated. In addition, our clients are very pleased with the appearance of the linen and the bioburden reduction that SULAOS delivers. Ecolab and OMNI have worked hard to ensure that we are getting the results they promised us. We went ahead and installed the system on our second tunnel, a Lavatec 10 mod tunnel and the results are excellent."

The system's popularity has drawn attention from laundry chemical suppliers as well. In September 2017, Ecolab Textile Care Division signed an exclusive global agreement with OMNI Solutions to partner in merchandising the SULAOS technology.

The partnership between Ecolab and OMNI Solutions offers commercial laundry operators a patent-pending solution for treating reuse water that provides water and energy savings, enhanced textile quality and improved wash aisle efficiencies. The SULAOS equipment works with Ecolab's AdvaCare Disinfectant to deliver the highest standard of clean. Together, Ecolab and OMNI have created a platform for driving the success of commercial laundries.

"This new ultraviolet-light technology offers a revolution in sustainable commercial laundry water and energy management," says Chris Smith, vice president and general manager, Ecolab Textile Care North and Latin America. "This breakthrough technology, enhanced by Ecolab's extensive industry expertise, comprehensive solutions and on-site personal service, is producing the highest quality results, delivering cleaner, safer linens."

My partners at OMNI, including Rupnow, CEO Peter Menaker and Chief Sales Officer Andy Feldman, and I are excited about the prospect of having Ecolab's global marketing reach and R&D capabilities backing our SULAOS venture.

LOOKING AHEAD

The system itself is modular and offers a plug-and-play installation. However, the technical elements of the design and functionality are intricate and precise. To achieve complete sanitization of reuse water, proper amounts of UV light, hydroxyl radicals and natural elements need to be scientifically dispersed to produce the desired results.

Our patent-pending system could have a significant impact on the process of reducing bioburden in tunnel washers. Based on what we've seen, SULAOS' operating costs are modest, and its results look promising. It's a game-changer for commercial laundries, particularly those serving the healthcare and hospitality segments. Our view is that in addition to high demand for improved patient and consumer safety, the rising costs related to HAIs and food-borne illnesses are driving commercial laundries to offer solutions that go beyond existing industry standards.

OMNI Solutions is a small company that has delivered a significant innovation. Our recently established partnership with Ecolab is driving industry interest. In response, our team is gearing up to expand to South America, China and Europe. OMNI is currently building a new manufacturing facility in Düsseldorf, Germany. We expect the plant to come on line in the next few weeks. We've already received orders to install 150 units.

Those commercial laundry operators who are curious about the benefits that SULAOS offers can expect that the system will improve whiteness and extend linen life, reduce odor-causing bacteria and bioburden in water re-use streams. It also will help save on water and energy and provide peace of mind to your healthcare and food-processing customers.

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Paul Jewison describes the SULAOS system during a TRSA-sponsored plant tour of Ecotex Healthcare Linen Service Corp. in Toronto.