

Ultraviolet: Disinfectant wave of the future

BY MATT POE, EDITOR

CHICAGO — Ultraviolet (UV) light is a natural disinfectant. It destroys bacteria that it comes in contact with.

Paul Jewison, president and CEO of Textile Care Services, a healthcare laundry in Rochester, Minn., has been using UV technology as a disinfectant for close to two years.

"This ultraviolet system is a game changer," he says. "It's over-kill because the light is on continuously. It can move all around the laundry."

However, only in recent years has the laundry industry begun to embrace the disinfecting properties of UV.

"Many other industries have been using this technology, and have been for decades," says Andrew Rupnow, founder and chairman of OMNI Solutions, which provides laundry cleaning and sanitization solutions and technologies. "It just has never been applied to the laundry industry."

Jewison started using UV when he helped Rupnow create a system that works on tunnel washers.

The two met at the 2016 Association for Linen Management (ALM) IMPACT Conference in Arizona. After talking about the system, Jewison decided to get involved.

"He brought it over to my plant, and we started developing a way to take ultraviolet light and apply it differently than it has been in the past," Jewison says.

UV AT WORK

So, how does UV light disinfect? UV comes in different wavelengths, and the 254-nanometer light kills surface bacteria and can disinfect water.

"UV-C light energy kills dangerous microorganisms by disrupting their DNA structure," says Wayne Schulze, UV application/Western region sales manager for Energenics Corp., which provides products to solve problems for the laundry industry. "This photochemical process shuts down a microorganism's reproductive processes and renders it non-pathogenic."

"When you look at the performance of ultraviolet light against this long list of bugs, it's staggering the amount it can kill," Jewison says. "It's up to 99%."

Schulze adds that the use of UV light is effective, consistent and repeatable. It will help maintain an acceptable level of microbial load based on a laundry's hygienic standards and monitoring program.

SURFACE CLEANSING

Theoretically, there are several points of application for UV in a laundry. One such use in the industry is as a surface disinfectant.

Energenics makes a mobile surface disinfectant unit called UV-MAX, which Schulze says is most commonly used at the loading dock to disinfect linen transport vehicles prior to loading with clean products for return to the customer.

"The unit is placed in the back of the truck with the door closed and zero exposure to the operator," he says. "Treatment times are determined by desired results. Customer feedback indicates the process can take as little as three minutes when used on a consistent basis."

Schulze adds that UV can be used anywhere in a laundry where microbial surface contamination is a concern. This includes clean rooms, soil-sort areas, bathrooms and lunchrooms.

"Zero exposure to operators and employees must be maintained when considering application," he cautions. "It's important to note that UV is 'line of sight'; therefore, shadowing must be considered."

Besides the mobile unit for surface disinfection, Schulze says UV technology has been available as an option on two of the company's standard products for some time. First, on the Kartwasher as a secondary treatment option. It's also available on Ambient Air Lint Filters (AALF) to disinfect the lint prior to collection for sanitary disposal.

IN THE WASH

As mentioned earlier, Rupnow and Jewison created a UV system that works on washers. The system, Smart Ultraviolet Light Advanced Oxidation System (SULAOS), treats press water reuse.

Rupnow says the system makes use of the 185-nanometer band of UV light to create ozone gas, which is a strong oxidizer. The system combines peroxide with the ozone to create a product called peroxide. When that compound comes into contact with 254-nanometer-wavelength UV light, it creates hydroxyl radicals, which are a strong oxidant for the disinfection process.

"Our background is taking this technology that's been proven over decades and applying it to the laundry industry for treating water and also textiles," he says.

Rupnow says using the system to treat press water reuse allows the operator to reuse more of that water without losing integrity in the linen.

"If you didn't use this type of system, you would build up a bio-film in that laundry process, and potentially the linens would start graying and stinking," he says. "By using the technology, you can use more of the water, provide a better product for customers, whiter linen, and reduce odor and water consumption."

On a tunnel washer, the press water is usually pumped up to the front. Rupnow says the system intercepts that line, takes the press water and runs it through the UV system, and puts it back into the rinse zone.

On a conventional washer, Rupnow says there are two points of application. First is treating the incoming cold water with UV before it enters the washer. Second is to place it on the flush manifold of the chemical system.

"What that does is not only cleans the water, but it also enhances the chemicals for better cleaning during the wash process," he says.

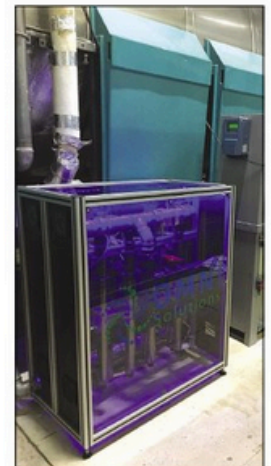
Other uses of the UV system, notes Rupnow, includes treating wastewater; cleaning and disinfecting overhead rail bags; cart wash treatments; and disinfecting delivery trucks and conveyor systems.

How effective is the UV system? Rupnow says third-party studies and tests done for customers shows the reduction of bacteria anywhere from a 90% to 99% reduction in colony-forming units (CFU).

In addition, Rupnow says the systems installed so far have been proven to save on water consumption and gas usage, because reusing the press water lessens the need for fresh water, and since the press water is warm, less gas is used



UV technology can be used to disinfect surfaces from the loading dock to the lunch room. (Photo: Energenics Corp.)



On washers, besides killing bacteria, UV technology can help reduce water and gas usage. (Photo: OMNI Solutions)

for heat.

While UV light is a proven, effective disinfectant, Schulze cautions that laundry operators shouldn't see it, alone, as a "silver bullet."

"It's most effective when used in conjunction with other disinfectants, like the chemicals you are using now," he says. "UV becomes the workhorse of your hygienic cleaning program in addition to

providing consistency and repeatability."

With basic training, a laundry operator can gain confidence in the technology and understand its limitations, according to Schulze.

"The UV technology, it's been in other industries, and now it's coming into the laundry industry," Rupnow concludes. "It's setting new standards. It's here to stay." ALN

Ecotex opens new facility, 20-year agreement with Interior Health

Plant outfitted with the latest technology to ensure cleanliness, infection control for patients

KELOWNA, B.C. — Ecotex Healthcare Linen Service recently began operating a new facility designed to support the Interior Health Authority of British Columbia, reports the Healthcare Linen Alliance. Built in just seven months, the newest Ecotex plant was designed to ensure industry best practices for infection control of linens supplied to the region's 72 hospitals and clinics.

Interior Health says it anticipates savings of approximately \$35 million over the length of the 20-year contract. Outsourcing this service will enable it to focus on patient care, as well as complete upgrades and expansion to emergency rooms and operating facilities.

The Ecotex facility in Kelowna is equipped with the latest equipment and technology to ensure hygienically clean linen processing, while improving ergonomics for employees and streamlining plant operations.

"We are pleased to have the



Long-time CBW operator Carlos Guzman fires up the new systems at the Ecotex plant. (Photos: Ecotex Healthcare Linen Service)



The Ecotex facility is equipped with the latest equipment and technology to ensure hygienically clean linen processing.

opportunity to work with Interior Health to provide support service to the region's hospitals by providing a safe and comfortable environment for patient care using smarter linen solutions," says Ecotex CEO Randy Bartsch. "We are confident that we can provide safety and comfort to patients that inspires trust and confidence, while at the same time offering services to IH in the most financially responsible manner, delivering attentive, high-quality service, employing

industry best practices and applying technical excellence."

Ecotex is an established industry leader in environmental sustainability and is certified Clean Green® for its environmental laundry practices, according to the Healthcare Linen Alliance. The facility incorporates the industry's best practices for energy conservation and fresh water use and is designed to reduce the environmental footprint from laundry generated by a health system by more than 60%. ALN