

Distilling Dilemma

UV technology disinfects water for liquor company

By Nick Nicholas



The brewing, dairy and beverage industries require effective disinfection of microbial organisms. Ultraviolet (UV) disinfection has become an increasingly accepted method of handling water disinfection in these industries. The UV process causes destruction of DNA and permanent inactivation of microbiological organisms, resulting in a lower demand for disinfection chemicals for process, makeup or wash water in plant operations.

U.S. federal regulations require the disinfection of water used in food and beverage processing before it can be reused. In many cases, the deficiency of a cost-effective disinfection solution means water is used only once and discarded. UV systems are cost-effective and simple to install and maintain.

Beverage Benefits

In the beverage industry, progressively stringent regulations and safety consciousness guide quality standards. It is essential to have effective microbiological disinfection in the beverage manufacturing process to reduce the risk of microbial growth in the finished product, which can increase the risks of infections for customers, among other aspects.

UV light can kill all known pathogens and microbiological organisms, including bacteria, viruses, yeasts, cysts, molds and mold spores. It is a low-maintenance, environmentally friendly solution that can

significantly reduce or eliminate the need for chemical treatment while ensuring a high level of disinfection.

UV systems for brewing and beverage applications utilize both quartz sleeve wipers and medium-pressure lamps to provide higher disinfection efficiencies for the proper treatment of water. Medium-pressure lamps provide greater inactivation of viruses, bacteria and cysts. Quartz sleeve wipers allow for removal of any built-up deposits on the quartz sleeves for optimal continuous performance.

UV disinfection has several advantages for the beverage and dairy processing industries. UV light does not introduce toxins or residues into process water and does not alter the chemical composition, pH, odor or taste of the disinfected fluid. This aspect is especially significant in the brewing and beverage industries, where dosing of chemicals can cause taste profile changes or potentially alter the fermentation process in liquor and beer production.

UV disinfection treatment either can be used as primary water disinfection or as an additional disinfection method in association with carbon filtration, pasteurization and reverse osmosis. UV radiation has no residual effect; therefore, the optimal position for this system is immediately prior to the point of use. This assures that microorganisms are destroyed and significantly reduces the chance of post-treatment re-contamination.

UV in Action

A large liquor company was faced with progressively stringent regulations and quality standards. It required an effective non-chemical microbiological disinfection solution to meet its needs for process water in its liquor distilling operations.

The distillery process water contained high levels of bacteria, including *Pseudomonas aeruginosa* and several other types of bacteria that need to be killed to ensure safety.

Genesis Water Technologies and its local partner consulted with the client and provided a solution for this challenge. The system utilized bag filtration for the removal of sediment and turbidity. This treatment process was followed by three LRC Series UV disinfection systems manifolded in parallel configuration to inactivate or kill the *P. aeruginosa* and two other types of bacteria that the source water analysis identified in the water stream.

The system solution was installed by the company's local partner on site with technical and installation assistance. The systems are performing within the operating parameters set by the client in compliance with local regulatory beverage water treatment standards. The client continues to pass all regulatory requirements. **IWWD**

Nick Nicholas is technical sales manager with Genesis Water Technologies. Nicholas can be reached at nick@genesiswatertech.com or 321.280.2742.

