

Process Water

Fulflo® Dechlorinator (DC) Non-Granular Carbon Cartridges for Chlorine Reduction of Incoming Process Water

Market Application Publication



Background

In beverage manufacturing and fine chemical production, processing equipment which include filtration systems are cleaned or sanitized using process water. The process water is combined with sanitizing or cleaning agents to prevent microbial growth and removal of residuals. This process water is used for pre-clean-in-place (CIP) flushing, as make-up water for the CIP solution and for post-CIP rinsing with equipment such as, cross flow filtration systems. Cross flow filtration systems used for making low alcohol beverages are cleaned and sanitized with chlorine-free process water since their filters are sensitive to chlorine exposure. Incoming plant water, with 3ppm chlorine as a disinfectant, must be treated to remove chlorine before being utilized as process water with these filters. Carbon filtration is typically used to produce chlorine-free process water.



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Challenge

A granular carbon filter system used by a beer manufacturer to produce chlorine-free process water exhibited chlorine break-thru and significant downstream particle migration. This system was designed to handle 200gpm flow rate through eighty 40" length carbon filters to produce process water with < 0.1ppm chlorine. The carbon filters were changed-out every 3-4 months or when chlorine levels exceeded 0.1ppm. The chlorine level normally produced by this system was in the 0.02 – 0.05ppm range, but

following one filter change-out, the produced process water had chlorine levels greater than the 0.1ppm limit. It was determined that the carbon filter failure was due to broken end caps and non-integral construction which released the carbon particles downstream into the process water causing destruction and irreversible plugging of the cross flow filters. This resulted in the loss of expensive existing filters, costs for replacement of cross flow filters as well as considerable manufacturing down time.

ENGINEERING

SUCCESS.

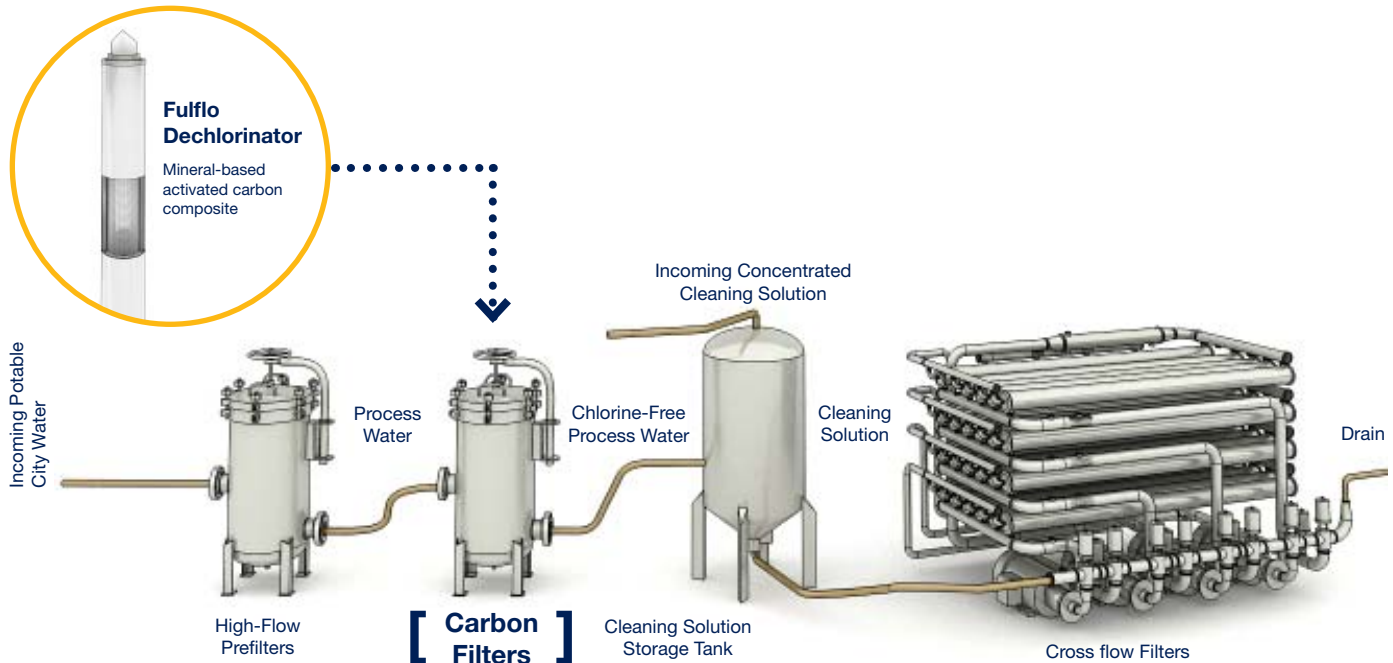
The Parker Solution

Fulflo® Dechlorinator (DC) - Non-Granular Carbon Cartridge

Parker's Fulflo DC is a cartridge produced from wrapped carbon incorporated into a robust polypropylene cage, end cap and core. The carbon is permanently bound to the support material, thus eliminating any chance of shedding.

As a result, this product eliminated the downstream particles that previously caused clogging and destruction of the cross flow filters during cleaning with process water.

The high surface area and carbon content provided excellent chlorine removal from the incoming water. This allowed for fewer carbon filter change-outs to produce chlorine-free process water which meet NSF standards.



Summary

- Challenge** To replace a beer manufacturer's carbon filtration system with a non-particle shedding and more efficient chlorine removal medium with longer service life
- Solution** Parker's Fulflo Dechlorinator (DC) non-granular carbon cartridge designed with robust polypropylene construction, manufactured in Parker's ISO 9001:2008 facility
- Results**
- Elimination of downstream carbon particle migration into process water
 - Reliable chlorine removal from incoming water
 - Increased service life, decreased filter change-outs, lower filtration costs