FOOD & BEVERAGE

Case Study: AZIENDA AGRICOLA BENOTTO di Benotto Luigino Winery, Itlay

Background

A well-known winery, **AZIENDA AGRICOLA BENOTTO di Benotto Luigino**, located in the northeast of Italy, in the province of Treviso, in the Valdobbiadene area, uses filtration both as a process for producing wine as well as a method to clean this process filtration system. Their production process incorporates a hollow fiber membrane system to reduce sedimentation and to provide improved clarity of their final product. The winery uses water as a CIP (clean in place) process to cross-flow across the hollow fibers in order to reduce premature fouling of these membranes. The winery utilizes a filtration system for the clean water supply used in the CIP system. This filtration system uses Pall's charged GF PLUS (Posidyne) filter cartridges as the final filtration step for this clean water supply. This water treatment system uses prefiltration for the Pall filter cartridge to extend the effective lifetime of this expensive filtration element.

Challenge

The water filtration system was designed with two stages of prefiltration prior to the Pall filter element. This prefiltration incorporated a 5-micron meltblown polypropylene cartridge and a 1-micron meltblown polypropylene cartridge prior to the GF PLUS (Posidyne) element. However, the feed water source contains unacceptably high levels of iron in the form of colloidal iron.

With a large percentage of the particle sizes at less than 1-micron, this prefiltration set-up was not capable of removing the majority of the colloidal iron. This resulted in premature fouling of the Pall elements and led to increased costs in this system. These costs included the replacement costs for these expensive Pall elements as well as increased labor costs for system downtime and replacement of the fouled elements.

Solution

Fluxa Filtri of Milan, Italy specified and installed NanoCeram® pleated water filter cartridges in an effort to protect the GF PLUS (Posidyne) elements in the CIP system. Fluxa Filtri chose to simply replace the 1-micron meltblown polypropylene cartridge with a NanoCeram filter cartridge, leaving the 5-micron meltblown polypropylene cartridge in place. This served to eliminate any capital expenditures to the client for new equipment as the NanoCeram filter element is designed to fit existing filter housings.

The nature of the NanoCeram® electropositive technology is such that the media's pore size is not related to filtration efficiency. With an average pore size of 2 microns, NanoCeram® filters still retain >99.9% of 0.2 micron particles and are particularly effective at adsorbing colloidal particles, including iron. The 5-micron meltblown polypropylene cartridge also serves to reduce the load of larger (<5 micron) particles from reaching the NanoCeram® cartridge, thereby extending the life of the NanoCeram® filter. This maximizes the value of NanoCeram in protecting the more sensitive and costly GF PLUS element downstream.

Summary

NanoCeram filter cartridges have increased the effective lifetime of the GF PLUS filter element by 3 to 4 times its previous lifetime. This has reduced filtration costs for the user by 30%

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