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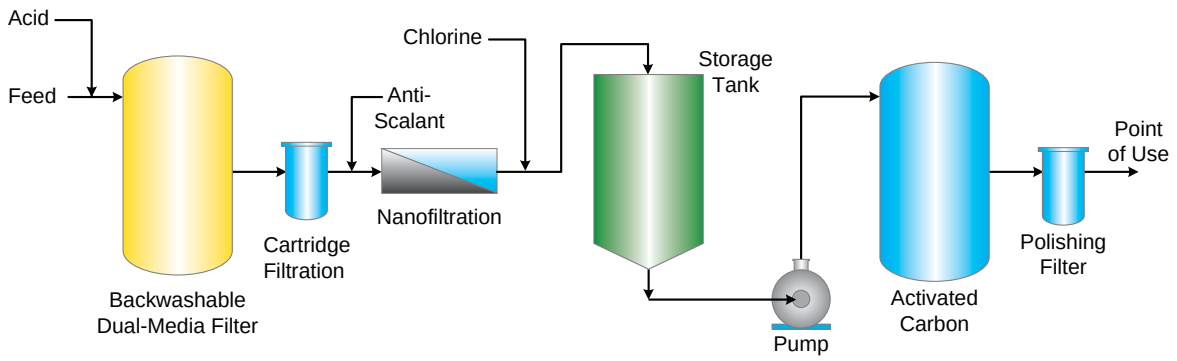
Product Application Profile

Nanofiltration and Granular Activated Carbon for Beverage Production

Client: Beverage Producer

Beverage-grade water produced more cost effectively using membrane based treatment system

Nanofiltration/THM Removal



Background:

Organics, color, bacteria, trihalomethane compounds (THM), hardness, chlorine, and other impurities must be removed from water supply sources to facilitate consistent production of consumer beverages and to meet FDA requirements. Beverage producers have traditionally used a combination of filters, lime softeners, and carbon filtration to meet ingredient water requirements. Nanofiltration (NF) systems are being retrofitted into many of these facilities because they remove about 95% of divalent ions, 40% of monovalent ions, and all organics above 150 MW. Accordingly, NF is ideally suited for removing hardness, alkalinity, sulfates, bacteria, organics, and color -- all of which have a detrimental effect on beverage production.

Solution:

AVANTech provides complete treatment solutions that can be easily and cost-effectively integrated into customer facilities. Cartridge filtration is used upstream of the NF to remove particulate that may foul the membrane feed channels. The NF consists of a multi-membrane array system operating at 85% recovery. Sulfuric acid and an anti-scalant are added prior to the NF to minimize hardness scales.

Following the NF, the permeate is post-treated by additional chlorination and activated carbon before being sent to the can line and blending areas. The product water is polished with 0.65 µ absolute filters prior to use.

System cleaning is accomplished semi-automatically with a CIP (Clean-In-Place) system and takes about two hours every three-four months for typical feed streams. When it is time to replace membranes, the operation requires about four to six hours for a 100 gpm system, and it can be performed by plant personnel. When designed with careful attention to system chemistry, crossflow requirements and proper pretreatment, a membrane system will require little maintenance and provide trouble-free performance.

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