

Warm Water Regeneration Of Zeta Plus™ Series and LifeASSURE™ Series Filters

Introduction

In many beverage applications, Zeta Plus™ series and, LifeASSURE™ series filters are eventually plugged not by particulate or microorganisms, but by deformable colloidal material inherent in the beverage. Typically, these are complexes including-glucans, proteins and tannins. Many beverage processors have found that including a warm water flush step in their daily filtration cycle reduces the build up of these colloidal plugging compounds in the pores of the filter, decreasing differential pressure build up. In effect, the warm water dissolves these compounds and flushes them from the filter matrix, resulting in greater filter service life and lower operating costs.

Procedure

1. At the end of the daily filtration run, push residual product out with ambient **filtered** water, or CO₂.
2. Flow 130 °F (55 °C) filtered water through the filters for 15 minutes to drain at the same flow rate as the product. Faster flow rates (up to 10 gpm/12" Zeta Plus cartridge or 2 gpm/10" LifeASSURE cartridge), where practical, are often more effective at accessing a greater number of pores.
3. If the filters are in series, it is recommended that the warm water regeneration flow goes through the first filter in series for a duration of 15 minutes to drain before the flow is diverted to the next filter in the series. This prevents plugging compounds from being dissolved from the first filter and deposited on the second.
4. If required, raise the water temperature to 80 °C and sanitize the system for 30 minutes or longer.
5. Once sanitation is complete, begin the next product run or close the housing valves until the next beverage run.

Always Use Filtered Water

It is highly recommended that the water used to regenerate or sanitize the cartridges be filtered at temperature. Failure to do so would:

1. Contaminate the system with particulate from the water.
2. Unnecessarily clog the filter reducing its service life.

Unfiltered water can plug filters as fast or faster than the beverage.

Regenerate Routinely And Frequently

The warm water can only work on those pores it can flow through. Once a pore is plugged it is effectively lost. This is why warm water regeneration should be practiced even before the differential pressure begins to build. Once the differential pressure rises, it indicates that pores are being permanently plugged and cannot be reopened.

Regeneration Before Sanitization

The regeneration temperature (55 °C) is ideal to dissolve warm water soluble materials such as carbohydrates and proteins. The temperature used to sanitize systems, typically 80 °C, is too hot and tends to denature or "bake" plugging compounds within the filter. Therefore, maximum benefit is achieved by conducting the warm water regeneration prior to the hot water sanitization.

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