Gusmer Enterprises, Inc.®

Cleaning, Sterilization, and Storage of Cartridge Filters

Proper cleaning and storage of filter cartridges is critical to maintaining good process economics. Sterilization of filters ensures product quality.

What does Gusmer Enterprises recommend for cleaning cartridge filters?

We recommend using hot 180 °F water for the main cleaning step. This step should always be preceded by at least a 10 minute cold water rinse. This is critical to remove the bulk of material from the membrane. It is then best to gradually increase the temperature, if possible, to the final 180 °F temperature. The hot cycle should be held for at least 25 minutes. A 5 minute cold water rinse should follow. We recommend that the cleaning water flow rate be the same as the process flow rate.

What does Gusmer Enterprises recommend for sanitization?

We recommend using hot 180 °F water for sanitization. As when cleaning, this should be preceded by a cold water rinse and followed by a cold water cool-down. The hot water temperature should be held for at least 30-45 minutes or however long it takes for all surfaces to reach temperature.

Can we use chemicals to clean and/or sanitize?

While most beverage plants use hot water, there are a variety of chemicals that are used in industry to clean and/or sanitize filters. These include peracetic acid (150ppm), hydrogen peroxide (0.5%), caustic (1%), and the many of trade-named chemicals common to the industry. Please note that hydrophilic PVDF membranes are not compatible with caustic and ozone is not recommended.

How can we store our cartridges?

Cartridges are most commonly stored in a 40% ethanol solution when not in a housing. Peracetic acid (0.3%) or sodium metabisulfate (100-500 ppm, adjusted to pH 4 with citric acid) may also be used. Note that peracetic acid and sodium metabisulfate solutions need to be changed weekly to remain effective. O-rings should be removed for long term ethanol storage, or whenever cartridges are stored for long periods outside of a housing.

How important is water quality?

The quality of sanitation and cleaning and cleaning water is one of the most important factors in extending filter life. Water supplies may have a very poor filterability and be high in deposits. All water should be softened and filtered prior to being used on the filters. Plants that have fixed poor water quality have seen as much as a 20% reduction in filter costs.

Notes:

- Venting the housing to remove trapped air is needed to make sure all surfaces cleaned or sanitized
- Introducing water above 135 °F without a cold and/or warm water rinse will bake proteins onto the membrane surface and cause a permanent loss in filter permeability
- Cleaning and sanitation water should not be re-circulated
- Cleaning is most effective if performed before the filters are completely plugged
- Open all sample valves during sanitation. Close them before flow has stopped.
- All cleaning and sanitation cycles should be followed by an integrity test of the filters.

Please contact your local Gusmer Enterprises representative should you need any help in optimizing your filtration process.

Gusmer Enterprises, Inc.®