

## Hot Water Sanitation of 3M Filters

### Introduction

Hot water sanitation is required in many applications to reduce bioburden populations and provide a sanitized (not sterile) environment. Hot water sanitation is generally preferred over chemical sanitation.

The temperature and duration required for hot water sanitation must be matched to the typical bioburden concentration of a given application for reliable sanitation. In general, the greater the bioburden concentration, the greater temperature and duration required; the lower the bioburden concentration, the lower the temperature and duration required\*. The most common temperature-duration specifications are 80 °C for 30 minutes. Higher temperatures and longer durations, if required, can be validated on-site by the customer. Measuring the duration of the hot water sanitation cycle should begin only when the water exiting the filter has reached the desired temperature.

**Below is a general outline for hot water sanitizing 3M filters.**

- Always wear the appropriate protective clothing and follow all safety precautions when working with hot water and pressure. Never exceed the pressure/temperature ratings of the filter housing.
- Ensure the outlet valve is closed. Open the inlet and vent valve(s) on the filter housing (stainless steel filter housings are recommended).
- Begin flowing water at the desired temperature through the inlet of the housing at a flow rate not exceeding the recommended process flow rate (refer to product literature), usually at a differential pressure of < 2 psid.
- Once water emerges from the top vent valve, close it and open the outlet valve carefully, allowing water to flow through the filter assembly.
- Measure the water temperature at the outlet of the filter housing. Once it reaches the desired temperature, begin timing the cycle.
- Once the sanitation cycle is complete, discontinue flow through housing and close the housings valves.
- To reduce the housing temperature to the appropriate process temperature, allow the housing to static cool, or allow mixing with filtered cold water under flow conditions. It is also important to open the vent valve so that flow is directed to the top of the housing, to avoid trapping a pocket of hot water.

### Further recommendations:

- Always use filtered water so as not to compromise the service life of the production filter.
- Sanitation flushing should be done in the forward flow direction only.
- De-aerated water is recommended for applications where oxygen pick-up is undesirable.
- Warm water regeneration (55 °C for 15 minutes) of the filter prior to hot water sanitation can reduce warm water soluble plugging constituents and extend filter service life in some applications. For more information, consult 3M Technical Brief 70020253400.

\* There can be instances where even a low population of heat-resistant bacteria may require sanitation with a higher temperature/ longer duration than expected. Sanitation temperatures and duration should be validated by the users to address their particular circumstances.

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