

DIRECTIONS FOR USE

SCOTTCART POLYPROPYLENE (PP) PRE-FILTER CARTRIDGES

1. INSTALLING FILTER CARTRIDGES IN HOUSINGS

- 1.1 Cut open the bottom end of the plastic bag (at the O-ring end of the cartridge). Leave the bag on the cartridge to protect it while installing it in the housing base.

Note: If installing a used (and properly stored) cartridge, wear gloves when handling and installing the cartridge.

- 1.2 Wet the O-rings with water.

- 1.3 Ease the O-ring end into the housing base. While doing so, hold the cartridge at both ends. Do not tilt the filter cartridge while installing into the housing since this may damage the adapter and cause one or more O-rings to slip out of position.

Note: For cartridges that have the code 7, 226 O-ring adapter with locking tabs – when twisting the cartridge into place, ensure that you hold the cartridge as close as possible to the adapter on the bottom. Do not twist solely from the middle or top because this can damage the welds below (between the 10" segments) and lead to possible bypass.

- 1.4 Remove the bag from the cartridge.

2. RINSING/WETTING

This step should be conducted with **pre-filtered water**, in the direction of filtration.

- 2.1 Open the vent valve on the upstream pressure gauge (on top of the housing) and partially close the outlet valve* on the downstream (filtrate) side.
- 2.2 Fill the filter cartridge housing with water until water escapes from the vent valve. Then, close the vent valve and continue rinsing by completely opening the outlet valve.
- 2.3 Continue to wet the media by running ambient temperature water (in a loop to save water) through the housing for 5-20 minutes (depending on the number of cartridges). Make sure the housing is full, and all air is vented out by periodically opening the vent valve. If no water escapes from the vent valve when opened, the housing is not staying full.

Tip: To save time or where there isn't sufficient water velocity to keep the housing full during this process, partially close the outlet valve so that the outlet gauge registers < 5psi. Vent the top from time to time to release any trapped air.

* If you are unable to adjust outlet pressure, conduct the rinsing/wetting process at a flow rate of 145 gal/m²/hour (88 gal/hr/10" segment) at a working Δp of 22 dpsi (working Δp (dpsi) = inlet pressure - outlet pressure)

3. STERILIZATION

The following sanitization procedures assume the rinsing/wetting step has just been performed and the housing is full of ambient temperature water. For multiple-round housings where a top plate is fitted for stability, do not overtighten this plate down onto the cartridges at ambient temperature as this does not allow for expansion of the media during a heat sanitization step and can lead to thermal warping of the media.

- 3.1 Determine if sterilization will be achieved with steam or hot water.

Note: If steam and hot water are not available, cartridges may be chemically sanitized.



3.2 If sterilizing with **STEAM**:

- Drain the housing by opening all valves

Note: **Large, multiple round housings** may be drained faster by applying (oil- and water-free) compressed air or gas (max $\Delta p = 0.3$ bar/4 psi) to the upstream side of the filter; water drains out on the downstream (filtrate) side through the sampling valve or runoff valve. Slightly open all valves on the cartridge housing during this process. Do not exceed the max Δp of 0.3 bar/4 psi because this may risk thermal warping during the steam sanitization. **Do not empty a single round housing with compressed air or gas.**

- Begin applying steam and wait for steam to escape from the filter outlet.

Note: Refer to the product tech sheet for pressure and temperature limits (typically, max $\Delta p = 4$ dpsi).

- Continue the steam sterilization for 30 minutes after steam first escapes from the filter outlet.
- Stop applying steam and close the inlet valve so that ambient temperature air isn't pulled in from outside the housing to create a vacuum.
- Then, either let the housing come to temperature naturally by keeping the inlet side closed and outlet valve open, or introduce filtered hot water to decrease media temperature slowly. This is critical to avoid warping the cartridge(s).
- After the setup has cooled, repeat the rinsing/wetting process from section 2.

3.3 If sterilizing with (pre-filtered) **HOT WATER**:

- Begin introducing 140°F-149°F water to the system to slowly raise the temperature of the cartridge. Continue this process until the temperature of water leaving the outlet is also 140°F-149°F.
- Begin the sanitization by introducing 185°F-194°F water. Continue this process until the temperature of water leaving the outlet is also 185°F-194°F.

Note: Refer to the product tech sheet for pressure and temperature limits (typically, max $\Delta p = 7$ dpsi).

- Recirculate the hot water for 30 min once the temperature of water leaving the outlet has reached 185°F-194°F.
- Stop the recirculation of water and begin introducing incrementally colder water to decrease the media temperature slowly. **This is critical to avoid warping the cartridge(s).**

4. FILTRATION

Once the cartridge has been sanitized and cooled, it is ready to use for filtration. Completely vent the housing at the beginning of filtration by slightly opening the vent valve. Venting is complete when water flows from the vent valve.

A note on filtration speed: the filtration speed (flow rate) should generate a working Δp of 5-7 dpsi for the majority of the run. While the max Δp of these cartridges is typically 73 dpsi at 68°F, flow rates will be significantly reduced or inhibited by working Δp of 20 - 30 dpsi.

A note on when to regenerate: perform a warm water regeneration before the working Δp reaches 14.5 dpsi (see section 6 for more information). If a warm water regeneration doesn't lower the working Δp , try a chemical regeneration. If a chemical regeneration also doesn't lower the working Δp , the cartridge may need to be changed.

5. REGENERATION

WHEN TO REGENERATE

- Perform a **warm water regeneration** before the working Δp during filtration reaches 14.5 dpsi. If that doesn't lower the working Δp , try a **chemical regeneration**. If a chemical regeneration also doesn't lower the working Δp , the cartridge may need to be replaced.
- At the very least, perform a **warm water regeneration** prior to storing cartridges for later re-use. Consider performing a **chemical regeneration**.



WARM WATER REGENERATION

Note: though these cartridges are backflushable, regeneration should be performed in the direction of filtration. All water used for regeneration should be pre-filtered.

1. Assuming the housing and cartridge are full of product, empty the housing and lines by applying gas to the inlet valve.
2. Flush out residual product in the direction of filtration with ambient temperature water until water runs clear on the outlet side. For multiple-round cartridge housings, consider bringing up the back pressure slightly (<5 psi) to force product out faster.
3. Begin introducing 100°F-140°F water to the system to slowly raise the temperature of the cartridge. Continue this process until the temperature of water leaving the outlet is also 100°F-140°F.
4. Recirculate the hot water for 15 min.
5. Proceed with filtration after the cartridge has been properly cooled, or conduct a heat sanitization step if desired (see section 3)

ALKALINE/CHEMICAL REGENERATION

Note: though these cartridges are backflushable, regeneration should be performed in the direction of filtration. All water used for regeneration or preparation of chemicals should be pre-filtered.

1. If the housing and cartridge are full of product, empty the housing by applying gas to the inlet valve. Flush out residual product in the direction of filtration with ambient temperature until water runs clear on the outlet side. For multiple-round cartridge housings, consider bringing up the back pressure slightly (< 5psi) to force product out faster.
2. Begin introducing the prepared cleaner to the filter inlet valve (Either 2% NaOH or KOH at 140°F-149°F OR AIRD Destainex-LF at 104°F-140°F)
3. Recirculate the cleaner for 30 min
4. Neutralize appropriately based on the cleaner used

COLD WATER BACKFLUSH

A cold water backflush is useful if using these cartridges as a main depth filter. In this instance, cold water backflushing can remove surface caking. Use ambient temperature water and backflush for 2-5 min, taking care not to exceed a Δp of 29 dpsi.

If using these cartridges in line at bottling, a cold water backflush step should not be necessary. Product should have been filtered prior to filtration such that there are not enough solids left to cause surface caking. If this is occurring, contact Scott Laboratories to discuss.

6. STORAGE FOR RE-USE

PRE-STORAGE REGENERATION

Cartridges should be regenerated prior to storage. At the very least, perform a **warm water regeneration** prior to storage, but consider performing a **chemical regeneration**. See section 5 for more information.

WHERE TO STORE CARTRIDGES

Cartridges can be stored:

- Inside the housing
- In a zipped plastic bag (10" Cartridges)
- In a DIY storage container:
 - Use plumbing water piping and cap one end to make it leak proof.
 - Fill the tub with storage solution, stand the cartridges upright in the tube, and cap or cover with plastic wrap. Ensure cartridges are fully submerged.
 - Use a bungee cord to secure the containers to a barrel rack, wall, or table.



STORAGE SOLUTION OPTIONS

SOLUTION TYPE	CONTACT TIME	NOTES
INEXPENSIVE ETHANOL* (VODKA)	> Months	Keep strength between 20-70% (40-135 proof). Do not exceed 135 proof. Do not use denatured spirits. Purge out water very well before submerging to avoid lowering the ethanol concentration.
PERACETIC ACID* (0.05%)	≤ 3days	After 3 days the peroxide in the formulation will have broken down, offering little protection against spoilage. Storage at a higher concentration can lead to premature breakdown and/or damage of the media.
CITRIC ACID* (1-2%)	≤ 3days	After 3 days bacteria will target this solution. If bacteria is already present in the cartridge, then bacterial spoilage will begin within hours. See below for use with SO ₂
CITRIC ACID* (1-2%) + SO ₂ (50-200 PPM)	≥ 3 months	Citric acid is commonly used in wineries with 50-200 ppm of added SO ₂ for long term storage. Periodically add more SO ₂ by dropping in an Inodose effervescent tablet.
SO₂ SOLUTION WITHOUT ACIDIFYING (50-200 PPM or ≤1000 PPM)	≥ 3 months	This is less effective than using SO ₂ with Citric Acid, however you can use up to 1000 ppm of SO ₂ which helps to bleach the media if your intention is to remove color. Periodically add more SO ₂ by dropping in an Inodose effervescent tablet.
SULFURIC ACID* (1-2%)	6 weeks +	Recommended by the manufacturer for long term storage.
CAUSTIC SODA (NaOH or KOH, 1-2%)	≤ 12 hours	Can be detrimental to some media types. Check with your supplier.
NITRIC AND PHOSPHORIC ACIDS & BLENDS*	Maximum 6 hours over life of cartridge	Recommended only where there is a very short time-lapse between filtrations. After this time, some acid sanitizers tend to break down (it becomes milky with a foul smell) and won't protect from microorganisms.
OZONE WATER/GAS	Never	Instantly destroys media.
IODOPHOR AND IODINE-BASED SANITIZERS	Never	Causes permanent staining and are impossible to remove.

**During storage in ethanol or acids, remove the O-rings as silicone tends to stretch and break up into little pieces when stored in these solutions long term.*

**Long-term storage at low pH and high SO₂ levels can potentially be corrosive to some stainless steel alloys over time.*

STORAGE UNDER PRESSURE

Cartridges can be stored inside the housing under pressure for several months so long as the pressure does not drop below 1 bar. After regenerating, then steaming or hot water sanitizing them, then placing the drained housing under 1-1.5 bars (14.5-21.8 psi) with a food-grade gas like nitrogen. You may use CO₂ but it is soluble and will take longer to build up the proper pressure.

Please take proper safety precautions when storing under pressure.

7. CHANGING THE CARTRIDGES

The filter cartridges are spent and must be changed in the following cases:

- If the maximum differential pressure (73 dpsi) has been attained (cartridge integrity has been compromised)
- The flow rate cannot be improved even after regeneration



VIDEO PROTOCOL

For a video explanation of these steps, [click here](#).

PRODUCT TRACEABILITY/LABELING

Part and lot information for ScottCart and ScottCart Aqua cartridges are laser etched on the filter (select SKUs) and/or printed – usually on both the inner and outer packaging labels. These identifying numbers allow full product traceability back to raw material lot numbers. The date the filter was manufactured and sealed in the bag is shown on the bag label (select SKUs).

LIABILITY

The filter cartridges manufacturer shall not assume liability for defects or damage resulting from improper handling of membrane filter cartridges. In particular, if the user does not follow these directions for use, the filter cartridges will be considered improperly handled. In the interest of further development of the products, we reserve the right to make changes to the specifications of these products without notice.