HOW TO STORE CARTRIDGE FILTERS

For Use Between Each Filtration - Wine

RECOMMENDATIONS

Just like with our lenticular modules, cartridge filters should be stored wet between uses. Some prefilter cartridges can be backflushed. Some membranes cannot. You can still perform a forward flow regeneration to try and dissolve the soluble compounds in the matrix if you have a non-backflushable cartridge. Please check with Scott Labs, or refer to the product technical data sheet whether your cartridge is backflushable or not.

A forward flow regeneration is done by rinsing with water about twice the speed you were filtering at. Keep this high flow for 5-10 minutes and then bring the water temperature up to no higher than 140ºF. At temperatures warmer than 140ºF, proteins lodged deeper in the matrix start to denature where they will stay and contribute to pressure buildup.

After 5 minutes of warm temperature high flow, switch the pump off and close the valves so that your cartridge sits in this warm environment for 10-20 minutes. Then, bring the temperature back down incrementally by rinsing with cold water. Drain and store or drain and reuse. Alternatively, you can continue with a hot water or steam sanitization.

Some cartridge manufacturers also recommend soaking the cartridges in caustic solution (sodium or potassium hydroxide) followed by an acid to neutralize the high alkalinity. *Take care to remove O-rings before soaking in extreme pH environments.*

It is a good idea not to let your cartridges dry out when storing them so that the materials remain pliable. Otherwise, they may become brittle and cause internal turbulence and premature damage during subsequent use.

SOLUTIONS TO STORE CARTRIDGES IN

- Inexpensive Ethanol (vodka - neutral, not denatured, isopropyl alcohol or methylated spirits)

  Make sure you that the strength is at least 40 proof but not higher than 135 proof at which point you can start to prematurely age and crack the cartridge or storage container over time. This storage solution is good for months to years as long as the proof doesn't drop below 40 degrees/20% alcohol.

- Acid Sanitizers like Nitric or Phosphoric Acid Blends

  This solution is typically recommended where there is a very short time-lapse (less than 3 days weekend) between filtrations. After this time, some acid sanitizers tend to break down (it becomes milky with a foul smell) and you won't have protection from microorganisms. Acid-based sanitizer solutions or oxidizing sanitizers are not recommended for long term storage

- Storage Under Pressure

  You can store your cartridges inside the housing between uses. After a hot water or wet steam sanitization, drain the housing, close it up and place under nitrogen or CO_2 pressure. Don't let the media dry out before placing under pressure. Maintain a pressure of between 1-1.5 bar. This is also a good way to tell whether all your gaskets are sound. We prefer an insoluble food-grade gas like nitrogen. You can also use CO_2 but maintaining pressure will take longer since it's soluble and much of it will dissolve in the water left in the cartridge before the pressure starts building up. Please take proper safety precautions as most cartridge housings

are only pressure rated for liquid pressure, not gas pressure. Removing the O-rings aren't necessary for this method. Cartridges can successfully be stored this way for months as long as the pressure doesn't drop below 1 bar. If it does, re-wet the media, sanitize, drain and store.

During storage in ethanol and acids, be sure to remove the O-rings between uses. Silicone tends to stretch and break up into little pieces when stored in these solutions long term. You can make your own storage containers to store the submerged cartridges in. Simply use plumbing water piping and cap one end to make it leak-proof. The storage solution filled tube can be capped or covered with plastic wrap. Stand the cartridges upright in these tubes and use a bungee cord to secure them to a barrel rack, wall or table. Make sure your cartridges are fully submerged in the storage solution. Alternatively, you can leave your cartridges in the housing with your chosen storage solution.

10" cartridges can be stored in a zipped plastic bag in the storage solution of your choice.

Regardless, if you plan to store cartridges for longer periods in a storage solution, remember to remove the O-rings first.

Here is a quick reference guide as a summary:

CARTRIDGE FILTER STORAGE SOLUTION OPTIONS

TYPE	CONTACT TIME	NOTES
Inexpensive Ethanol (Vodka)	> Months	*Keep strength above 20%/40 proof. *Do not use denatured spirits. *Purge out water very well before submerging to avoid lowering proof < 40 degrees.
Nitric and Phosphoric Acid/Blends	Maximum 6 hours cumulative	Use at own risk. These acids damage the membrane structure at longer contact times.
Peracetic Acid at 0.05%	≤ 3days	After this time 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% Solution	≤ 3days	After this time bacteria will target this solution. 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.* Care should be taken if bacteria is already present in the cartridge, then bacterial spoilage will begin within hours without added SO_2 .
Citric Acid 1-2% in combination with 50-200 ppm SO_2	≥ 3 months	After this time bacteria will target this solution. 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. Care should be taken if bacteria is already present in the cartridge, then bacterial spoilage will begin within hours without added SO_2 .
SO_2 Solution without Acidifying 50-200 ppm or ≤ 1000 ppm	≥ 3 months	Not as efficient as acidifying the solution first, but still a solid choice to store your media. You can use up to 1000 ppm of SO_2 which helps to bleach the media if your intention is to remove color. The lower the pH of the solution, the more effective the SO_2 will be. Add more SO_2 periodically (Inodose effervescent tablets) to make sure the solution stays effective.
Sulfuric Acid 2% Solution	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.
Ozone Water/Gas	Not recommended by the manufacturer	Instant destruction of media.
Iodophor or other Iodine-based Sanitizers	Not recommended by the manufacturer	Permanent staining and impossible to remove.