SCOTT LABORATORIES

DIRECTIONS FOR PREPARATION & REGENERATION

SCOTTCART® DUAL LAYER CA & PREMEMBRANE GF

1. PREPARATION (Before First Use)

STEP	PROCEDURE	COMMENTS
1.1 Cold Water Flushing	• In direction of flow • Volume: At least 7 gal/10” • Flow: 145 gal/m^2/hour or 88 gal/hr/10” segment • Temperature: < 68°F • Pressure: 22 psi	• Water quality as recommended or use RO-Water • Keep vent valves slightly open while flushing • Adjust the outlet valve to obtain the system pressure at > 1.5 bar (21.7 psi) • Max 72.5 dpsi (in filtration direction) • Flushing time 3-5 minutes • If pressure can’t be reached, bring backpressure up to 3 psi for a few seconds while circulating water and venting housing to release trapped air. Repeat 2-3 times.

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2. STERILIZATION

STEP	PROCEDURE	COMMENTS
2.1 Hot Water Flushing	• In direction of filtration • Volume: 3 gal/10" cartridge • Flow: 1,000 gal/m²/hour • Temperature: 140°F-149°F	• See 1.1 • Max 29 dpsi • Flushing 2-3 minutes
2.2 Sterilization: Hot Water	• In direction of filtration for 30 minutes of recirculation • Flow: 158-172 gal/m²/hour • Temperature: 185°F-194°F	• See 1.1 • Max 7 dpsi • If temperature at least 185°F, recirc 30 minutes.
2.3 Sterilization: Steam	• In direction of filtration 30 min. • Valves slightly open. • Temperature: 249°F	• Max 4 dpsi
2.4 Cold Water Flushing (Cooling)	• In direction of filtration. • Volume: 26 gal/30" cartridge • Flow: 132 gal/m²/hour • Temperature: < 68°F	• See point 1.1 • At 7 dpsi

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3. FILTRATION

STEP	PROCEDURE	COMMENTS
3.1 Fill Housing	• Open the inlet valve • Fill the housing with water/beverage with outlet valve closed and vent valve open. • When product reaches vent valve, open outlet valve and close vent valve.	• Make sure the housing is full
3.2 Filtration	• In the direction of filtration	• The lower the operating dpsi, the longer the cartridge lifespan over time. Start no higher than 5-7 dpsi and let pressure build up from there. • Do forward flow regeneration procedure before reaching 14.5 psi for maximum throughput/longevity. • Max 72.5 dpsi • Yeast and bacteria are “squishy” and can get pushed through before max dpsi.
3.3 Drain Housing	• Emptying the water/beverage upstream line and the filter housing with air, water or nitrogen. • Open all valves for draining through gravity.	

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4. BACKFLUSH

STEP	PROCEDURE	COMMENTS
4.1 Cold Water Flushing	• See 1.1	• See 1.1
4.2 Cold Water Flushing	• Against direction of filtration • Flow: up to 21 psi at 68°F for 2-5 minutes	• 2-5 minutes • Don't exceed 29 psi pressure on inlet (which is normally the outlet)
4.3 Warm Water Flushing	• Only in direction of filtration • See 2.2	• See 2.2

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5. ALKALINE REGENERATION

The Dual Layer CA and Premembrane GF cartridges are only compatible with liquids up to a pH of 9. Contact with liquids over this pH will result in permanent damage of the membrane material.

STANDARD CARTRIDGE

TEMPERATURE	ΔP IN DIRECTION OF FILTRATION	ΔP IN REVERSE DIRECTION (only prefilters, never membranes)
68°F	72.5 psi	29 psi
176°F	29 psi	7 psi
>158°F <203°F	7 psi	4 psi
Steam >249°F	4 psi	4 psi

NOTES

1. **The flushing and sterilization water has to be free of particles.** It is recommended to use partly softened or RO water with conductivity of < 500 µS/cm^2 .
2. The quality of water used can influence the result of chemical regeneration steps. Hard water in combination with alkaline solutions, or some cleaning agents, can result in precipitation and block the membrane.
3. Since water temperatures vary, the maximum differential pressure values stated should not be exceeded. If necessary, reduce the given throughput. **(Differential pressure = pressure at the housing bell or inlet side minus the pressure at the outlet of the cartridge housing).**

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WATER QUALITY PARAMETERS

The following are recommendation for water quality for use with filters. Below are the quality requirements/parameters for cleaning water used to prepare and regenerate ScottCart® Dual Layer CA and Premembrane GF filters.

Fe, Mn	< 0.1 ppm
Al	< 0.5 ppm
Silica	< 10 ppm
Chlorine	not detectable
Sum: Ca + Mg	< 70 ppm
Hardness	< 60 ppm $CaCO_3$
Turbidity	< 1 NTU

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1480 Cader Lane / P.O. Box 4559 / Petaluma, CA 94954 / (707) 765-6666 / scottlab.com