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Optimal Conditions for Use of PallSeitzSchenk® Filter Sheets in Beer Filtration

Flow Rate and Differential Pressure: 20x20 cm

Sheet:

	Optimum bbl/hr/sheet	Maximum bbl/hr/sheet	Maximum Differential Pressure
Sterilizing Filtration	0.14	0.20	27 psi (1.8 bar)
Polishing Filtration	0.40	0.50	37 psi (2.5 bar)

- Effective filter area 0.77 sq. ft. (0.070 meter sq.) **40x40**

cm Sheet:

	Optimum bbl/hr/sheet	Maximum bbl/hr/sheet	Maximum Differential Pressure
Sterilizing Filtration	0.20	0.33	27 psi (1.8 bar)
Polishing Filtration	0.60	0.75	37 psi (2.5 bar)

- Effective filter area 1.54 sq. ft. (0.143 meter sq.) **60x60**

cm Sheet:

	Optimum bbl/hr/sheet	Maximum bbl/hr/sheet	Maximum Differential Pressure
Sterilizing Filtration	0.50	0.75	27 psi (1.8 bar)
Polishing Filtration	1.40	1.75	37 psi (2.5 bar)

- Effective filter area 3.58 sq. ft. (0.330 meter sq.)

Sterilizing Filtrations:

Throughput range 5 to 30 times maximum recommended flow rate with good prefiltration.

Polishing Filtrations:

Normal for well-settled ales:

- 20x20 – 0.45 bbl/sheet
- 40x40 – 0.67 bbl/sheet
- 60x60 – 1.50 bbl/sheet

For Lager beers, expect a throughput volume/filter sheet of 2-3 times greater



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Rinsing and Sterilization:

Unsterilized sheets should be rinsed with water or recirculated with product for a minimum of 10 minutes prior to use.

- Hot Water Sterilization: 20 minutes at a minimum 180°F
- Steam Sterilization (Stainless Steel Plates ONLY): 20 minutes at a maximum pressure of 7 psi and a maximum temperature of 230°F. Do not expose filter plates to heat in fully tightened condition. Retighten filter after cooling
- Chemical sterilants are unreliable.
- Chlorinated or caustic chemicals may damage structure.
- Surfactants such as Quaternary Ammonium or Lodofoer are difficult to rinse from the sheet matrix.
- Suggested Compatible Sanitizers:
 - Sulfur Dioxide @ 1000ppm
 - 5% Citric Acid Solution
 - Phosphoric Acid Solution 0.1-0.2%, pH 2.2

Important Factors for Good Sheet Filtrations:

- Maintain consistent conditions of flow and pressure throughout filtration.
- Use only proper grades suggested for specific purposes. **Do not** mix grades within a single filtration without a diversion chamber.
- If regeneration is attempted, use only clean water below 120°F in reverse direction of flow. Regeneration is most effective if done right before high differential pressure is reached; i.e. below 15-20 psi (1.0-1.5 bar). Recirculate product after regeneration in critical applications.
- Assure sheets are properly oriented in filter with rough filter sheet surface facing the inlet plates and the smooth side marked with grade and logo facing the outlet plates.
- If excess edge leakage occurs (more than 3-5 gallons per 8 hr shift), check condition of filter for proper gaskets, good lubrication, or warped plates.
- Prevent release of gas from solutions inside of filter by maintaining appropriate back pressure: 10-15psi above product equilibrium pressure. Keep filter well vented through use of the outlet at the highest available point and bleeding of vent valves.
- Proper prefining, treatment with enzymes, gelatin, isinglass or prefiltrations with diatomaceous earth, will usually lead to greater economy and reliability of sheet filtrations.
- Beers should not be premembraned filtered with sheets more than 24 hours before the membrane filtration. With heavy beer styles, sheet filtration may be necessary immediately prior to membrane filtration.
apparatus.



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- Consult Scott Laboratories, Inc. representative for suggestions or trial filtration