

SPECIALTY RESIN



PROBLEND™ ULTRA LOW TOC THROW HIGH POROSITY MIXED-BED RESIN

ProBlend UL-HP (P/N ER30012) is the highest grade mixed-bed made to attain the lowest leachable TOC levels. The product is fully tested to ensure its ability to achieve 18 megohm resistivity. Each batch is also tested to ensure its ability to rinse to below 5 ppb of leachable TOC in less than 50 bed volumes from start up and to less than 1 ppb after 100 bed volumes.

FEATURES

- Conforms to paragraph 21 CFR173.25 of the Food Additives Regulations of the FDA
- Designed to provide ultra-high purity water
- High operating capacity
- Low effluent TOC values
- Superior organic fouling resistance
- Excellent regenerable capacities for inorganic and organic ions

Physical Properties

Functional Structure	
Cation	RSO ₃ ⁻ H ⁺ (Hydrogen form gelular sulfonated polystyrene copolymer)
Anion	R ₄ N ⁺ OH ⁻ (Hydroxyl form Type 1 porous gel strong base alkyl quarternary ammonium polystyrene copolymer)
Physical Form.....	Spherical beads
Screen Size Distribution	
+16 mesh (U.S. Std.)	2% maximum
-45 mesh (U.S. Std.)	2% maximum
Moisture Content (as shipped)	65% maximum
Volume Ratio (as shipped)	
Cation (Na ⁺ form)	36%
Anion (Cl ⁻ form).....	64%
Total Capacity	
Cation (Na ⁺ form)	1.95 meq/mL minimum
Cation (H ⁺ form)	1.85 meq/mL minimum
Anion (Cl ⁻ form).....	1.25 meq/mL minimum
Anion (OH ⁻ form)	1.00 meq/mL minimum
Approximate Shipping Weight.....	43 lb/cu.ft. (720g/l)
Standard Packaging.....	5 or 7 cu.ft. plastic lined fiber drums

Suggested Operating Conditions

Maximum Temperature	
Non-regenerable *	175°F (80°C)
Regenerable	140°F (60°C)
Operating Flow Rate (Typical)	2 to 10 gpm/cu.ft.
pH Range.....	0 to 14
Backwash Rate (See graph on next page)	
Pressure Drop (See graph on next page)	
Metals Content (Typical ppm dry weight)	
Iron (Fe).....	100 ppm maximum
Copper (Cu).....	50 ppm maximum
Lead (Pb)	50 ppm maximum
Percent Conversions to Ionic Form	
Cation H.....	99.9% minimum
Anion OH	98% minimum **
Anion Cl + SO ₄	2% maximum
Anion CO ₃	** (See note below)

Column Operating Capacity

0.55 meq/mL (12 Kgrs/cu.ft.) minimum to electrolyte break-through during initial cycle.

Limitations

Extended exposure to strong oxidizers, such as chlorine, hydrogen peroxide, and concentrated nitric acid, degrade the structural backbone of the resin and should be avoided.

* 6 month typical resin life at 175°F (80°C).

** Hydroxides and CO₃ levels measured immediately after production and may change during storage and shipment due to adsorption of CO₂ from the atmosphere.

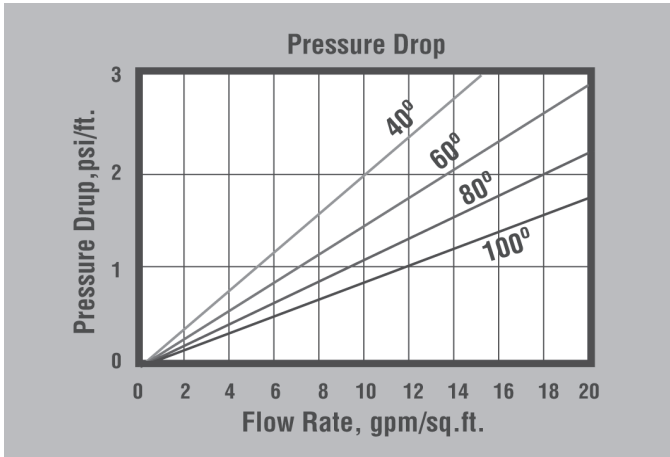
CAUTION: DO NOT MIX ION EXCHANGE RESINS WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials such as ion exchange resins.

Note: These suggestions and data are based on information we believe to be reliable. However, we do not make any guarantee or warranty. We caution against using these products in any unsafe manner or in violation of any patents. Further, we assume no liability for the consequences of any such actions.

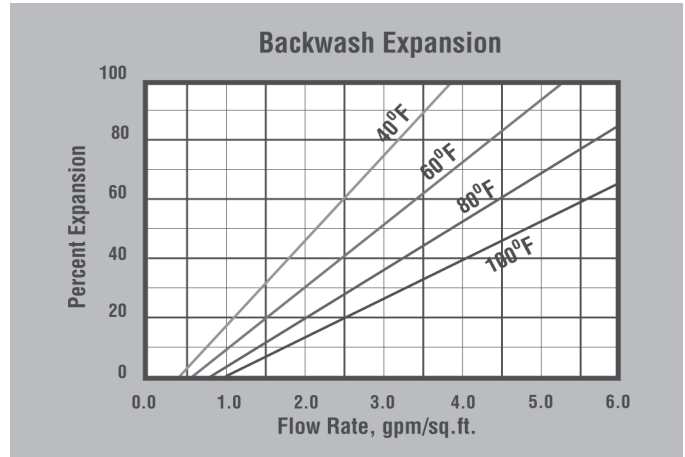
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PRESSURE DROP — The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate at various temperatures.



BACKWASH — The backwash step is used to separate the components prior to regeneration and to remove particles. The separation is optimized at a bed expansion of 50 to 75 percent.

ProBlend High Porosity Resins Comparison Table

Specifications	Nuclear Grade (P/N ER30003)	Semi-Conductor (P/N ER30002)	Low TOC Throw (P/N ER30011)	Ultra Low TOC Throw (P/N ER30012)
Resistivity in polishing 18 megohm water @ 60 bed volumes per hour (megohm)	> 15 **	> 18	> 18	> 18
Leachable TOC @ 25 bed volumes from start up (ppb as C) *	No Spec	No Spec	< 25	< 25
Leachable TOC @ 50 bed volumes from start up (ppb as C) *	No Spec	< 50	< 10	< 5
Leachable TOC @ 100 bed volumes from start up (ppb as C) *	No Spec	No Spec	No Spec	< 2

* Leachable TOC measured at 0.5 bed volumes per minute at 175°F (80°C).

** Influent greater than 1 megohm.