

SPECIALTY RESIN



PROBLEND™ SEMICONDUCTOR HIGH CAPACITY MIXED BED RESIN

ProBlend™ Semiconductor High Capacity (P/N ER30004) is a premium grade mixed bed made to reduce leachable TOC levels and ensure its ability to produce 18 megohm resistivity. The product is fully tested to ensure its ability to achieve 18 megohm resistivity. Each batch is tested to ensure it will rinse to below 50 ppb of leachable TOC in less than 50 bed volumes from start of service.*

FEATURES

- Complies with USDA & FDA regulations (paragraph 21 CFR173.25) for potable water applications *
- Designed to provide ultra-high purity water
- Highest operating capacity
- Low effluent TOC values
- Superior thermal and physical stability
- Excellent regenerable capacities for inorganic and organic ions

* For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to insure compliance with extractable levels.

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 quaternary ammonium polystyrene copolymer)

Physical Form	Spherical beads
Screen Size Distribution	16 to 45 nominal
+16 mesh (U.S. Std.)	2% maximum
-45 mesh (U.S. Std.)	2% maximum
pH Range	0 to 14
Moisture Content (as shipped)	60% maximum
Approximate Shipping Weight	43 lbs/cu.ft.
Volume Ratio (as shipped)	
Anion/Cation	60/40
Total Capacity	
Cation (Na ⁺ form)	1.95 meq/mL minimum
Anion (Cl ⁻ form)	1.40 meq/mL minimum

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.
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% minimum
Anion OH	90% minimum ***
Cl + SO ₄	10% maximum
CO ₃	*** (See note below)

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.

* Influent greater than 1 megohm.

** 6 month typical resin life at 175°F.

*** Hydroxides measured in anion component prior to mixing. The CO₃ level measured immediately after production is held to the same specifications as the SO₄. Actual CO₃ levels may change during storage and shipment due to adsorption of CO₂ from the atmosphere. We recommend keeping all containers sealed closed until use. For longer storage times, gas barrier packaging (mylar) is suggested. Contact your SWT for more information.

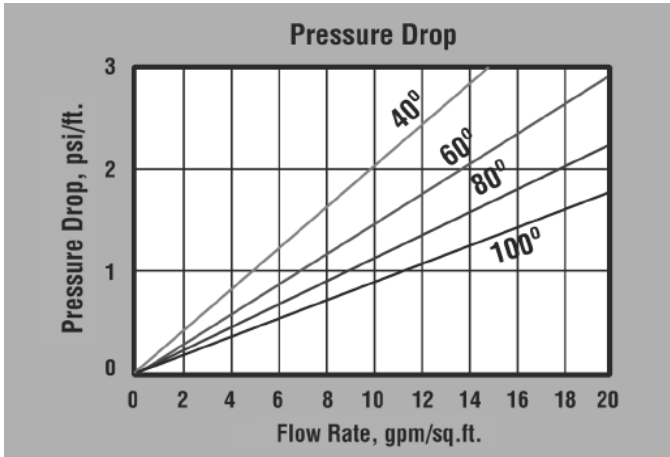
CAUTION: DO NOT MIX ION EXCHANGE RESINS WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials such as ion exchange resins.

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.

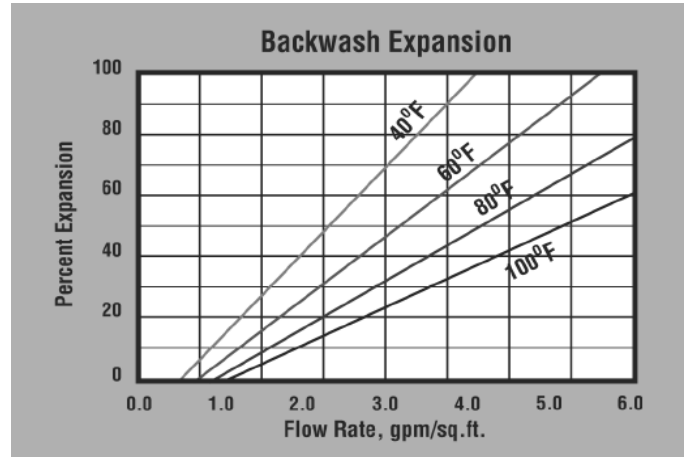
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PRESSURE DROP — The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate at various temperatures.



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 Capacity Resins Comparison Table

Specifications	Nuclear Grade (P/N ER30008)	Semi-Conductor (P/N ER30004)	Low TOC Throw (P/N ER30005)	Ultra Low TOC Throw (P/N ER30009)
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	1

* Leachable TOC measured at 0.5 bed volumes per minute at 175°F.

** Influent greater than 1 megohm.