SPECIALTY RESIN

PROSELECT™ ER20009

ProSelect ER20009 (P/N ER20009) is a high capacity, shock resistant, macroporous, tertiary amine, weakly basic anion resin supplied in the free base form as moist, tough, uniform, spherical beads. ER20009 has tremendous regeneration efficiency and low rinse requirements and is also capable of reversibly adsorbing large organic ions. ER20009 has superior kinetics and greater resistance to oxidation and osmotic shock than standard gel type weak base resins. ER20009 is intended primarily for use in multiple bed demineralizers, resource recovery, and waste treatment applications. ER20009 can be used in multiple bed systems to protect strongly basic resins from fouling while decreasing regenerant consumption.

FEATURES & BENEFITS

- Organic fouling resistance and high operating capacity
- Complies with FDA Regulations (paragraph 21CFR173.25) for Potable Water Applications *
- Highly uniform particle size, low pressure drop
- Superior physical stability

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

Applications

Deionization—ER20009 can be used in a two-bed system following a strong acid cation exchanger, such as ProSoft™ Premium, where weak acid ions (silica and carbon dioxide) do not have to be removed. Where complete anionic removal is required, ER20009 can be placed ahead of a strong base anion exchange resin, such as ProSelect™ Silica, where it will efficiently remove strong acids, such as chlorides, sulfates, and nitrates. ER20009 exhibits tremendous regeneration efficiency (90%) and as an added benefit can be regenerated with waste caustic from the strong base anion unit. ER20009 can also be used as the top layer of a stratified anion unit, with ProSelect™ Silica as the bottom layer.

Organics—ER20009 has the ability to reversibly adsorb organic molecules like the naturally occurring humic and tannic acids that are primarily responsible for organic fouling. It can be used in a separate bed, ahead of the strong base exchanger to remove organics and strong acid ions. When used in this scheme ER20009 protects the strongly basic anion exchanger from becoming fouled.

Suggested Operating Conditions

Maximum Temperature	212° F (100° C)
Minimum Bed Depth	24 inches
Service Flow Rate	2 to 4 gpm/cu.ft.
Backwash Rate	50 to 75% Bed Expansion
Regenerant Concentration †	1 to 6 percent
Regenerant Flow Rate	0.5 to 1.0 gpm/cu.ft.
Regenerant Contact Time	At least 30 minutes
Regenerant Level	3 to 6 lb/cu.ft.
Displacement Rinse Rate	Same as Regen Flow Rate
Displacement Rinse Volume	10 to 15 gal/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Fast Rinse Volume	35 to 60 gal/cu.ft.

Typical Properties

Polymer Structure	Styrene crosslinked w/ DVB
Functional Group	$R-N-(CH_3)_2+$
Ionic Form, as shipped	Free Base
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std.)	< 5 percent
– 50 mesh (U.S. Std.)	< 1 percent
pH Range	0 to 14
Sphericity	> 95 percent
Water Retention	53 to 60 percent
Solubility	Insoluble
Approximate Shipping Weight	40 lb/cu.ft.
Swelling	
Free Base to Cl– Form	Approx. 20 percent
Total Capacity	> 1.3 meq/mL

† **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.

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MEMBER Water Quality ASSOCIATION

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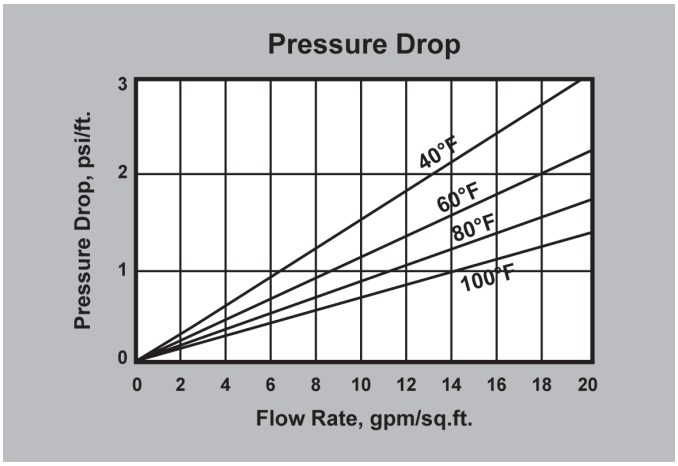
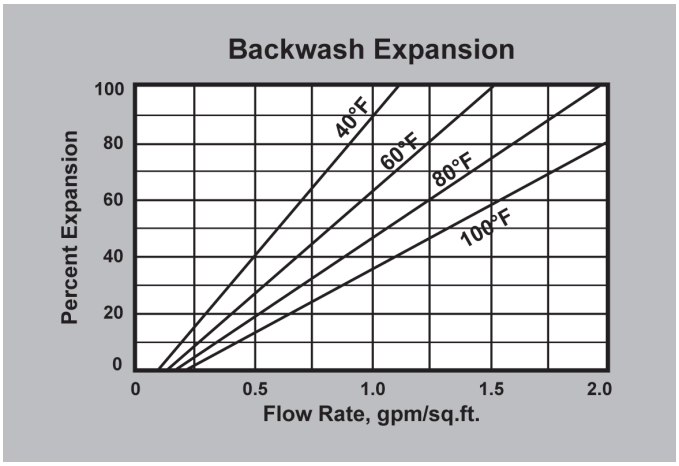
PROSELECT™ ER20009





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

BACKWASH — After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed.

OPERATING CAPACITY

The operating capacity of ER20009 for acid removal at various regeneration levels when treating an influent with a concentration of 500 ppm of HCl, as $CaCO_3$, is shown in the following table.

Pounds NaOH/cu.ft.	Capacity Kilograins/cu.ft.
3	19.0
4	21.5
5	23.5
6	25.0

Regeneration of ER20009 can be accomplished using sodium hydroxide, ammonium hydroxide, or sodium carbonate.

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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