SPECIALTY RESIN

PROSELECT™ BORON/BORATE

ProSelect Boron/Borate is a borate selective macroporous chelating weak base anion resin. Its unique functionality provides exceedingly high selectivity for boron in almost any aqueous solution, yet can be regenerated with acid and then neutralized with various alkaline salts prior to use. It is intended for all borate removal applications including potable water, ultrapure water, and boron removal from concentrated brines.

FEATURES

- Highly selective for boron — able to remove boron from almost any liquid solution, provided that the pH is greater than 4
- Superior physical stability — 90% plus sphericity, high crush strengths, and carefully controlled particle distribution provide long life and low pressure drop
- Suitable for regenerable applications — two stage acid/caustic regeneration process restores the capacity for hundreds of operating cycles

Suggested Operating Conditions

Maximum Temperature	
Free Base Form	170°F (77°C)
Minimum Bed Depth	24 inches
Backwash Expansion	25 to 50%
Maximum Pressure Loss	20 psi
Operating pH Range	4 to 10 SU
Regenerant Concentration	
Acid Strip	0.5 to 6% HCl
Caustic Neutralization	1 to 4% NaOH
Regenerant Level	3 to 10 lb/cu.ft.
Regenerant Flow Rate	0.25 to 1.0 gpm/cu.ft.
Regenerant Contact Time	> 30 minutes
Displacement Flow Rate	Same as dilution flow
Displacement Volume	10 to 15 gal/cu.ft
Rinse Flow Rate	Same as service flow
Rinse Volume	35 to 60 gal/cu.ft.
Service Flow Rate	0.5 to 2 gpm/cu.ft.

Packaging Options

500 ml samples, 1 cu.ft. bags, 1 cu.ft. boxes, 1 cu.ft. drums, 7 cu.ft. drums, 42 cu.ft. supersacks

Part Number

Free Base Form	ER20013

Physical Properties

Polymer Matrix	Styrenic Macroporous
Ionic Form	Free Base
Functional Group	Methylglucamine
Physical Form	Spherical beads
Color	White to tan
Particle Size	16 to 50 US Mesh (297 to 1190 µm)
% < 50 mesh (300 µm)	< 1%
Minimum Sphericity	95%
Uniformity Coefficient	1.6
Reversible Swelling	Free Base to Cl 15% to 20%
Temperature Limit	170°F (77°C)
Capacity	0.8 meq/ml
Moisture Retention	46 to 60%
Regenerability	Yes
Approx. Shipping Weight	38 to 40 lb/cu.ft. (609 to 641 g/L)

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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MEMBER Water Quality ASSOCIATION
FORM 1166
EFFECTIVE
SEPTEMBER 2023

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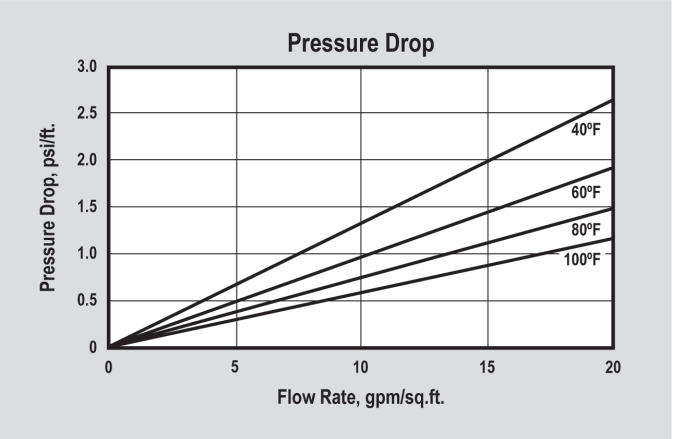
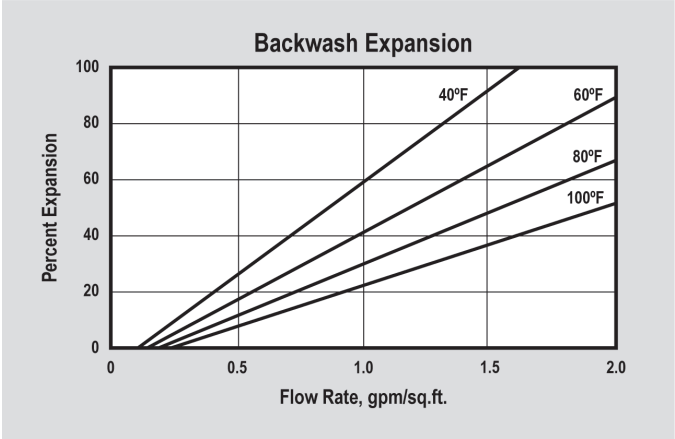
PROSELECT™ BORON/BORATE



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 graph above shows the expansion characteristics as a function of flow rate at various temperatures.*

APPLICATIONS

Boron Removal From Potable Water

ProSelect Boron/Borate can be used to remove boron from potable waters of any type. Its selectivity for boron is so high that the concentration of common bulk ions—such as chloride, sulfate, and bicarbonate—are unimportant. ProSelect Boron/Borate is kinetically limited and cannot be operated at a high flow rate without experiencing increased leakage and decreased throughput capacity.

Regeneration is accomplished with acid to strip the boron, followed by caustic to remove the acidity. The regenerated resin should be buffered into the potable water range to prevent possible pH excursions when it is first returned to service, and also to prevent possible calcium carbonate scaling.

Boron Removal From Brine

ProSelect Boron/Borate can be used to remove boron from almost any brine stream, even when the brine is fully saturated. The brine pH must not be lower than approximately 4 or the chelating exchange groups will be destabilized and might not work properly. Ion exchange in any concentrated salt solution is kinetically hindered by high TDS, therefore flow rates are necessarily low.

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