



PC003

Food Grade

Gel Strong Acid Cation Exchange Resin

PURE RESIN

Product Description & Applications

Pure PC003 is a high purity premium grade, high capacity, conventional gel polystyrene sulphonate cation exchange resin supplied in the sodium or hydrogen form. It is intended for use in all water softening, dealkalization, deionization and chemical processing applications such as the following:

1. **Pure PC003** in H form (**PC003H**), can be used in multiple and mixed bed demineralizers with strong base anion exchangers such as Pure PA101, PA102 and PA103 in OH form.
2. **Pure PC003** is well suited for industrial, commercial or residential softening applications because of its high capacity and good physical stability.

NSF/ANSI 44&61 certified.



Typical Physical & Chemical Characteristics

Polymer Matrix Structure	Polystyrene crosslinked with DVB
Functional Group	R-(SO ₃) ⁻ M ⁺
Ionic Form, as shipped	Na ⁺ / H ⁺
Physical Form And Appearance	Clear Spherical Beads
Puerility	95% min.
Screen Size Range --- U.S. Standard Screen	16-50 mesh, wet
Particle Size Range	+1.2 mm < 5%, -0.3 mm < 1%
Uniformity Coefficient	1.6 max.
Water Retention, Na ⁺ form H ⁺ form	43-48% 47-54%
Swelling Na ⁺ → H ⁺ Ca ²⁺ → Na ⁺	10% max. 5% max.
Shipping Weight, Na ⁺ form H ⁺ form	780-880 g/l (51 lbs/cu.ft, approx.) 770-870 g/l (50 lbs/cu.ft, approx.)
Total Exchange Capacity, Na ⁺ form H ⁺ form	2.0 eq/l min. 1.9 eq/l min.
pH Range	0-14

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Suggested Operating Conditions

Maximum Temperature

Na⁺ form

120°C (248°F) max.

H⁺ form

100°C (212°F) max.

Minimum Bed Depth

0.6 m (24 inches)

Backwash Rate

25-50% Bed Expansion

Regeneration

Hydrogen Cycle

10% HCl or 1-8% H₂SO₄

Sodium Cycle

10-15% NaCl

Flow Rate

2 to 7 BV/h (0.25 to 0.90 gpm/cu.ft)

Contact Time

At least 30 Minutes

Displacement Rinse Rate

Same as Regenerant Flow Rate

Displacement Rinse Volume

10 -15 gallons/cu.ft

Fast Rinse Rate

8-40 BV/h (1.0-5.0 gpm/cu.ft)

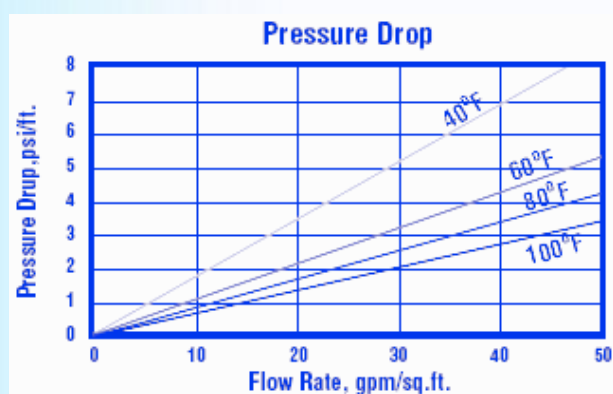
Fast Rinse Volume

3-10 BV (24-45 gal/ft³)

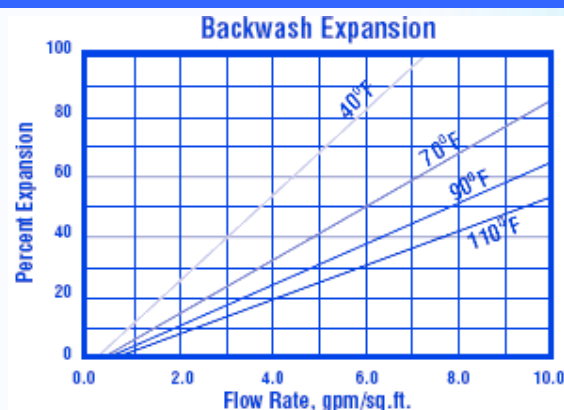
Service Flow Rate

4-8 BV/h (1.0-5.0 gpm/cu.ft)

Hydraulic Properties



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: After each cycle the resin bed should be backwashed at a rate that expands the bed 25 to 50 percent. This will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of Pure PC003 in the sodium form.

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