



PC003ID

Industry Grade
Gel Strong Acid Cation Exchange Resin

PURE RESIN

Product Description & Applications

Pure PC003ID is a light colored, gel type polystyrene sulfonate cation resin supplied in the sodium form as moist, tough spherical beads.

Pure PC003ID is well suited for industrial softening applications. Its high bead integrity, excellent chemical and physical stability, play a large part in its successful employment in these areas.

Typical Physical & Chemical Characteristics

Polymer Matrix Structure	Polystyrene crosslinked with 8% 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% 50-56%
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	2.00 eq/l min. 1.90 eq/l min.
pH Range	0-14

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Suggested Operating Conditions

Maximum Temperature

Na⁺ form

150°C (300°F) max.

H⁺ form

100°C (212°F) max.

Minimum Bed Depth

0.6 m (24 inches)

Backwash Rate

25-50% Bed Expansion

Regeneration

Sodium Cycle

8-20% NaCl

Hydrogen Cycle

10% HCl, 2-8% H₂SO₄

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

Same as Service Flow Rate

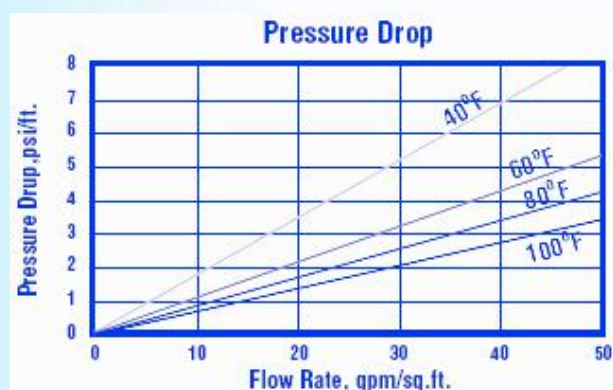
Fast Rinse Volume

35-60 gallons/cu.ft

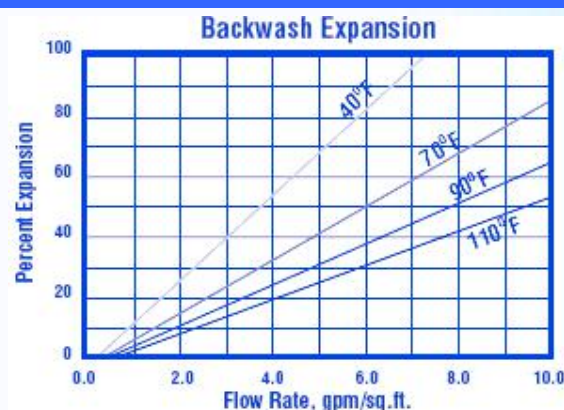
Service Flow Rate

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 50 to 75 percent. That will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of Pure PC003ID in the sodium form.

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