DOWEX™ HCR-S

A High Capacity Cation Exchange Resin for Industrial Softening and Demineralization Applications

Product	Type	Matrix	Functional group
DOWEX™ HCR-S	Strong acid cation	Styrene-DVB gel	Sulfonic acid

Guaranteed Sales Specifications		Na^+ form	H^+ form
Total exchange capacity, min.	eq/L	2.0	1.8
	kgr/ft³ as $CaCO_3$	43.7	39.3
Bead size distribution range† 300 - 1,200 µm, min. (50 mesh - 16 mesh)	%	90	90
Acidity range	pH	7.0 - 10.5	—
Color throw, as packaged, max.	APHA	20	—

Typical Physical and Chemical Properties		Na^+ form	H^+ form
Water content	%	44 - 48	50 - 56
Whole uncracked beads	%	90 - 100	90 - 100
Total swelling ($Na^+ \rightarrow H^+$)	%	8	8
Particle density	g/mL	1.28	1.22
Shipping weight**	g/L	820	780
	lbs/ft³	51	49

Recommended Operating Conditions

- Maximum operating temperature: 120°C (250°F)
- pH range 0 - 14
- Bed depth, min. 800 mm (2.6 ft)
- Flow rates:
  - Service/fast rinse: 5-50 m/h (2-20 gpm/ft²)
  - Backwash: See figure 1
  - Co-current regeneration/displacement rinse: 1-10 m/h (0.4-4 gpm /ft²)
- Total rinse requirement 3 - 6 Bed volumes
- Regenerant: 1-8% H_2SO_4, 4-8% HCl or 8-12% NaCl

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).
**As per the backwashed and settled density of the resin, determined by ASTM D-2187

Typical Properties and Applications

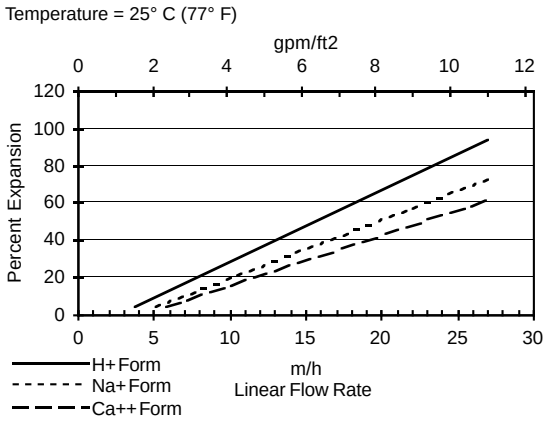
DOWEX™ HCR-S cation exchange resin is a high capacity resin with excellent kinetics and good physical, chemical and thermal stability.

DOWEX HCR-S cation exchange resin is well suited for industrial water softening and demineralization in the co-current mode of regeneration.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Backwash Expansion Data

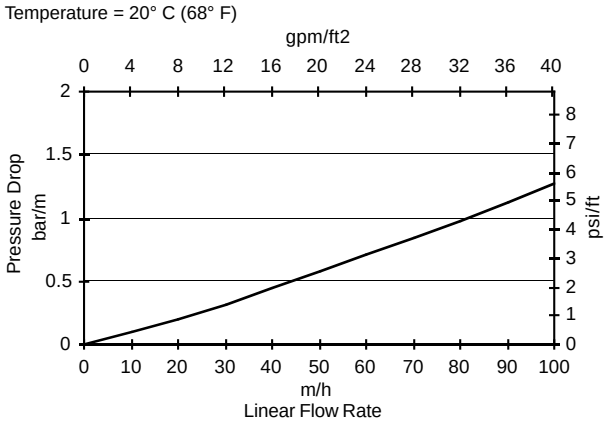


For other temperatures use:

$F_T = F_{77°F}$ [1+ 0.008 ($T_{°F}$ -77)], where F ≡ gpm/ft^2

$F_T = F_{25°C}$ [1+ 0.008 (1.8$T_{°C}$ - 45)], where F ≡ m/h

Figure 2. Pressure Drop Data



For other temperatures use:

$P_T = P_{20°C}$ / (0.026 $T_{°C}$ + 0.48), where P ≡ bar/m

$P_T = P_{68°F}$ / (0.014 $T_{°F}$ + 0.05), where P ≡ psi/ft

Note: These resins may be subject to drinking water application restrictions in some countries: please check the application status before use and sale.

DOWEX™ Ion Exchange Resins

For more information about DOWEX resins, call the Dow Water Solutions business:

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