DOWEX HCR-S

A High Capacity Cation Exchange Resin for Softening & 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/ft^3 as $CaCO_3$	43.7	39.3
Bead size distribution range† 0.3 mm - 1.2 mm, min. (50 mesh - 16 mesh)	%	90	90
Acidity Range	pH	7.0 - 9.5	-
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 lbs/ft^3	820 51	780 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 Backwash Co-current regeneration/displacement rinse	 5-50 m/h (2-20 gpm/ft^2) See figure 1 1-10 m/h (0.4-4 gpm/ft^2)
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 the Particle Size Distribution Cross Reference Chart (Form No. 177-01775/CH 171-476-E).

DOWEX
Ion Exchange Resins

For more information about DOWEX resins,
call Dow Liquid Separations business:
North America 1-800-447-4369
Latin America . . . . . .(+55) 11-5188-9345
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Japan . . . . . .(+81) 3-5460-2100
Australia . . . . . .(+61) 2-9776-3226
http://www.dow.com/liquidseps

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

Temperature = 25° C (77° F)

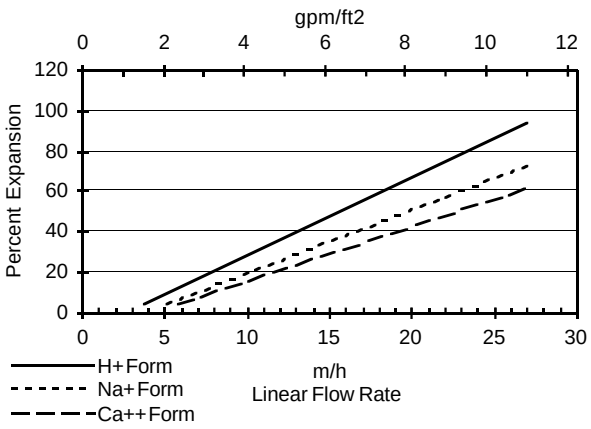
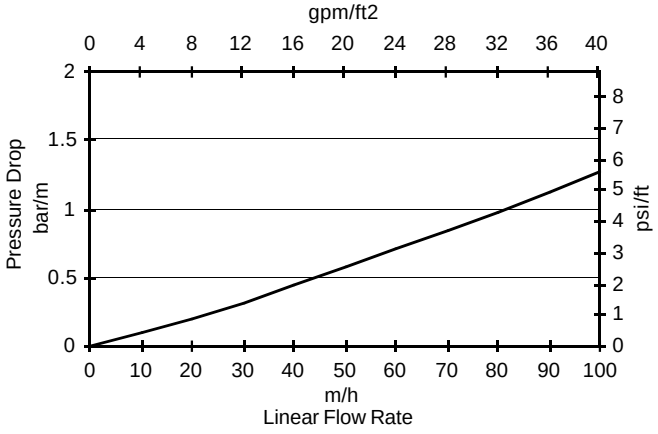


Figure 2. Pressure Drop Data

Temperature = 20° C (68° F)



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

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

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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