



## DOWEX™ HCR-S/S High Capacity Cation Exchange Resin

For Domestic Softening Applications

### Description

DOWEX™ HCR-S/S Cation Exchange Resin is a high capacity resin with excellent kinetics and good physical, chemical and thermal stability. DOWEX HCR-S/S can be used for domestic softening applications.

### Typical Physical and Chemical Properties

Physical form		White to amber translucent spherical beads
Matrix		Styrene-DVB gel
Functional group		Sulfonic acid
Ionic form as shipped		Na <sup>+</sup> form
Total exchange capacity, min.	eq/L	1.9
	kg/ft <sup>3</sup> as CaCO <sub>3</sub>	41.5
Bead size distribution range	300–1,200 μm, min.	90
	< 300 μm, max.	1
Moisture retention capacity	%	48–52
Whole uncracked beads	%	90–100
Color throw, as packaged, max.	APHA	20
Acidity range	pH	7.0–10.5
Total swelling (Ca <sup>++</sup> → Na <sup>+</sup> )	%	5
Particle density	g/mL	1.3
	Shipping weight**	
	g/L	800
	lbs/ft <sup>3</sup>	50

Test methods are available on request.

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

### Suggested 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 BV*/h (0.6–6.2 gpm/ft <sup>2</sup> )
Backwash	See Figure 1
Regeneration/displacement rinse	1–10 m/h HCl (0.4–4 gpm/ft <sup>2</sup> )
Total rinse requirement	3–6 BV*
Regenerant	8–12% NaCl

\*1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin or 7.5 gals per ft<sup>3</sup> resin

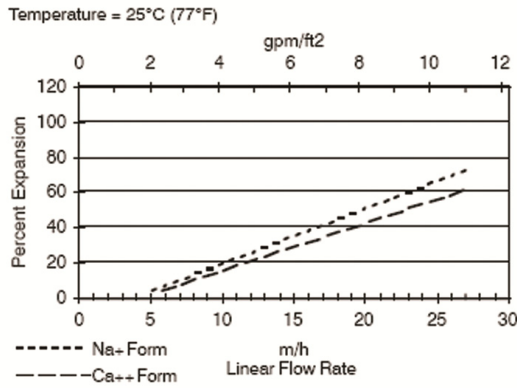
### Packaging

25 liter bags or 1 cubic foot bags

## Hydraulic Characteristics

Figure 1 shows the bed expansion of DOWEX™ HCR-S/S Cation Exchange Resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for DOWEX HCR-S/S as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed.

### Figure 1. Backwash Expansion Data

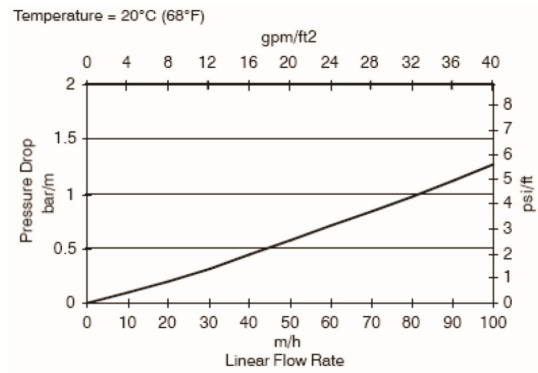


For other temperatures use:

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

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

### Figure 2. Pressure Drop Data



For other temperatures use:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ where } P \equiv \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ where } P \equiv \text{psi/ft}$$

## **Product Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

## **Customer Notice**

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

## **Note**

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

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.

### **DOWEX™ Ion Exchange Resins** For more information about DOWEX™ resins, call the Dow Water & Process Solutions business:

North America: 1-800-447-4369  
Latin America: (+55) 11-5188-9222  
Europe: (+32) 3-450-2240  
Pacific: +60 3 7958 3392  
Japan: +813 5460 2100  
China: +86 21 2301 1000  
<http://www.dowwaterandprocess.com>

Notice: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

