DOWEX™ MARATHON™ C Resin

Uniform Particle Size, High Capacity Cation Exchange Resin

For Softening (Industrial and Residential) and Demineralization Applications

Description

DOWEX™ MARATHON™ C Strong Acid Cation Exchange Resin is a uniform particle size resin designed for use in industrial and residential softening and demineralization applications. The small uniform beads exhibit faster kinetics than conventionally sized resins. The improved kinetics typically results in improved regeneration efficiency, higher operating capacity, reduced regenerant usage and less waste water.

DOWEX MARATHON C Resin also shows exceptional stability to compressive and osmotic stress.

Typical Physical and Chemical Properties

Physical Form		Amber translucent spherical beads	
Matrix		Styrene-DVB, gel	
Functional group		Sulfonic acid	
Ionic form as shipped		**Na^+ form**	**H^+ form**
Total volume capacity, min.	eq/L kgr/ft^3 as $CaCO_3$	2.0 43.7	1.8 39.3
Moisture retention capacity	%	42–48	50–56
Particle size†			
Uniformity coefficient, max.		1.1	1.1
Harmonic mean diameter	µm	585 ± 50	600 ± 50
Whole uncracked beads	%	95–100	95–100
Total swelling ($Na^+ \rightarrow H^+$)	%	8	8
Particle density	g/mL	1.28	1.20
Shipping density**	g/L lbs/ft^3	820 51	800 50

† 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	120ºC (250ºF)
pH range	0–14
Bed depth, min.	800 mm (2.6 ft)
Flow rates: Service/fast rinse Backwash Co-current regeneration/displacement rinse Counter-current regeneration/displacement rinse	 5–60 m/h (2–24 gpm/ft^2) See Figure 1 1–10 m/h (0.4–4 gpm/ft^2) 5–20 m/h (2–8 gpm/ft^2)
Total rinse requirement	2–5 BV*
Regenerant	1–8% H_2SO_4, 4–8% HCl or 8–12% NaCl

*1 BV (Bed Volume) = 1 m_3 solution per m_3 resin or 7.5 gals per ft_3 resin

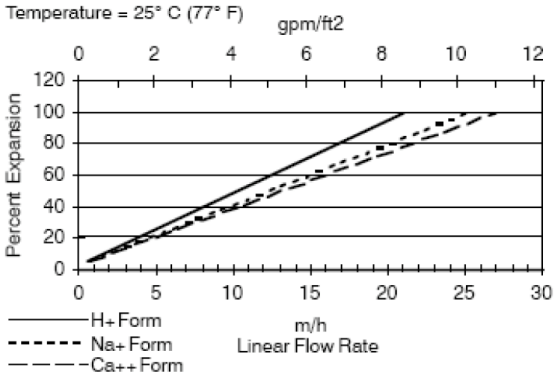
Packaging

25 liter bags or 5 cubic feet fiber drums

Hydraulic Characteristics

Figure 1 shows the bed expansion of DOWEX™ MARATHON™ C Resin as a function of backwash flowrate and water temperature. Figure 2 shows the pressure drop data for DOWEX MARATHON C Resin 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.

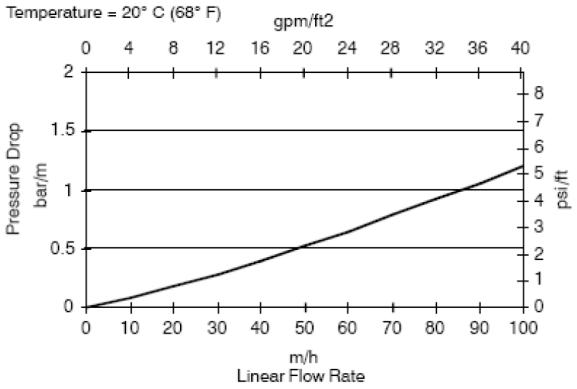
Figure 1. Backwash Expansion Data



For other temperatures use:

$F_T = F_{77°F}$ [1+ 0.008 ($T_{°F}$ -77)], 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

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.

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

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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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