Product Data Sheet

DOWEX MARATHON™ 8300 Ion Exchange Resin

Uniform Particle Size, Weak Acid Cation Exchange Resin for Industrial Demineralization Applications

Description

DOWEX MARATHON™ 8300 Ion Exchange Resin is designed for water utility operators and power plant chemists who are concerned with achieving maximum water and chemical efficiency. The chemical properties and particle size of the resin have been optimized to help yield excellent operating capacity and rinse characteristics, reducing chemical regenerant and rinse water usage while maintaining a superior physical stability that users of DOWEX MARATHON™ Resins have come to know through more than 25 years of successful operation. Operating capacity improvements of 15% have been demonstrated under good operating conditions versus other weak acid cation resins currently available. This allows users to simultaneously minimize operating costs and environmental impacts while also preserving precious raw water resources.

While the benefits of DOWEX MARATHON 8300 can be realized in standard co-flow regenerated systems, it is ideal when used in packed bed and layered bed systems such as the AMBERPACK™ and UPCORE™ Ion Exchange Systems. DOWEX MARATHON 8300 and DOWEX MARATHON 1300 H have been specifically designed to work together in new and retrofitted layered bed systems for improved water and chemical efficiency.

Typical Physical and Chemical Properties**

Matrix	Polyacrylic, macroporous
Type	Weak acid cation
Functional Group	Carboxylic acid
Physical Form	Off-white, opaque, spherical beads
Ionic Form as Shipped	H^+ Form
Total Exchange Capacity	≥ 4.6 eq/L
Water Retention Capacity	40 – 50%
Particle Size	
Particle Diameter [b]	500 ± 150 µm
Uniformity Coefficient	≤ 1.35
< 300 µm	≤ 0.1%
Whole Uncracked Beads	≥ 95%
Swelling	$H^+ \rightarrow Na^+$: 60%
Bulk Density, as shipped [c]	760 g/L

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

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Suggested Operating Conditions**

Maximum Operating Temperature	100°C (212°F)	
pH Range	0 – 14	
Bed Depth, min.	700 mm (2.3 ft.)	
Flowrates		
Service	5 – 50 BV*/h (1 – 6 gpm/ft^3)	
Backwash	See Figure 1	
Regeneration		
Chemical Injection	2 – 4 BV/h (0.25 – 0.5 gpm/ft^3)	
Displacement Rinse	1 – 2 BV at 2 – 4 BV/h (0.25 – 0.5 gpm/ft^3)	
Fast Rinse	2 – 4 BV at 5 – 50 BV/h (1 – 6 gpm/ft^3)	
Total Rinse Requirement	3 – 6 BV*	
Regenerant	HCl	H_2SO_4
Concentration	2 – 4%	0.5 – 0.7%
Dose (100% basis)	105% of ionic load	105% of ionic load

* 1 BV (Bed Volume) = 1 m^3 solution per m^3 resin or 7.5 gal per ft^3 resin

Hydraulic Characteristics

Bed expansion of DOWEX MARATHON™ 8300 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Pressure drop data for DOWEX MARATHON 8300 as a function of service flowrate and temperature is shown in Figure 2. Pressure drop data are valid at the start of the service run with clean water.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

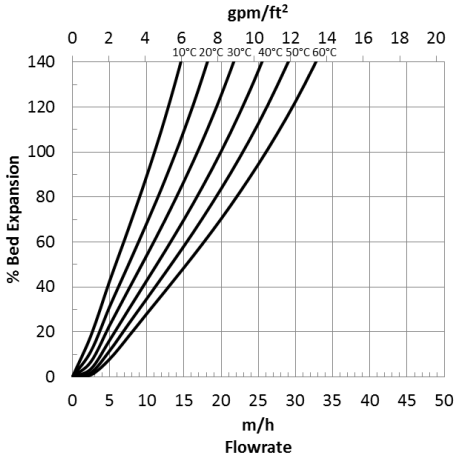
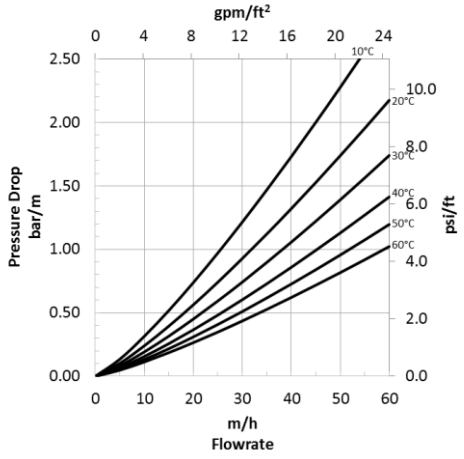


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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.

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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.

**All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. Nothing in this document should be treated as a warranty by Dow.

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