

DOWEX[™] MARATHON[™] A Resin

Uniform Particle Size, High Capacity, Strong Base Anion Exchange Resin For Potable and Industrial Demineralization Applications

Description DOWEX[™] MARATHON[™] A Anion Exchange Resin is specifically designed to give high throughput and economical operation in primary demineralizer beds. Because of its uniform particle size, this resin offers a number of economic advantages over conventional (polydispersed) resins. The small uniform bead size of DOWEX MARATHON A Resin results in rapid exchange kinetics during operation, more complete regeneration of the resin, and faster, more thorough rinse following regeneration. It can be used for all types of water but especially recommended for waters that have a high percentage of silica and carbon dioxide.

Typical Physical and Chemical Properties

Physical Form		White to amber translucent beads	
Matrix		Styrene-DVB, gel	
Functional group		Quaternary amine	
Ionic form as shipped		CI⁻ form	OH- form
Total volume capacity, min.	eq/L kgr/ft³ as CaCO₃	1.3 28.4	1.0 21.9
Moisture Retention Capacity	%	50–60	60–72
Particle size †			
Uniformity coefficient, max.		1.1	1.1
Harmonic mean diameter	μm	575 ± 50	610 ± 50
Whole uncracked beads	%	95–100	95–100
Total swelling (CI- \rightarrow OH-)	%	20	20
Particle density	g/mL	1.08	1.06
Shipping density**	g/L Ibs/ft ³	670 42	640 40

† 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 OH [_] form CI [_] form pH range	60°C (140°F) 100°C (212°C) 0–14
	Bed depth, min. Flow rates:	800 mm (2.6 ft)
	Service/fast rinse Backwash	5–60 m/h (2–24 gpm/ft²) See Figure 1
	Co-current regeneration/displacement rinse Counter-current regeneration/displacement rinse	1–10 m/h (0.4–4 gpm/ft²) 5–20 m/h (2–8 gpm/ft²)
	Total rinse requirement	3–6 BV*
	Regenerant:	
	Type Temperature	2–5% NaOH Ambient or up to 50°C (122°F) for silica removal

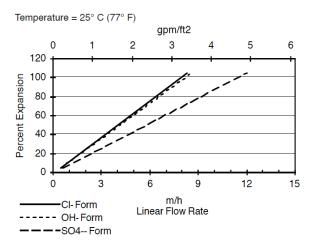
*1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gals per ft³ resin

Packaging 25 liter bags or 5 cubic foot fiber drums

Hydraulic Characteristics

Figure 1 shows the bed expansion of DOWEX[™] MARATHON[™] A resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for DOWEX MARATHON A 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.

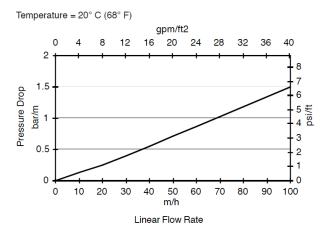
Figure 1. Backwash Expansion Data



For other temperatures use:

 $F_T = F_{77^{\circ}F} [1 + 0.008 (T_{^{\circ}F} - 77)]$, where $F \equiv gpm/ft^2$ $F_T = F_{25^{\circ}C} [1 + 0.008 (1.8T_{^{\circ}C} - 45)]$, where $F \equiv m/h$

Figure 2. Pressure Drop Data



For other temperatures use:

 $P_T=P_{20^{\circ}C} / (0.026 T_{\circ C} + 0.48)$, where P = bar/m P_T=P_{68^{\circ}F} / (0.014 T_{\circ F} + 0.05), where P = psi/ft

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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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