



DOWEX MARATHON C-10

A Uniform Particle Size, High Capacity Cation Exchange Resin for Softening and Demineralization Applications

Product	Type	Matrix	Functional group
DOWEX [®] MARATHON [®] C-10	Strong acid cation	Styrene-DVB, gel	Sulfonic acid

Guaranteed Sales Specifications		Na ⁺ form	H ⁺ form
Total exchange capacity, min.	eq/L	2.2	1.9
	kgr/ft ³ as CaCO ₃	48.1	41.5
Water content	%	40 - 45	46 - 51
Uniformity coefficient, max.		1.1	1.1

Typical Physical and Chemical Properties		Na ⁺ form	H ⁺ form
Mean particle size [†]	µm	740 ± 50	760 ± 50
Whole uncracked beads	%	95 - 100	95 - 100
Total swelling (Na ⁺ → H ⁺)	%	7	7
Particle density	g/mL	1.31	1.22
Shipping weight	g/L	845	810
	lbs/ft ³	53	50

Recommended Operating Conditions

- Maximum operating temperature 130°C (265°F)
- pH range 0 - 14
- Bed depth, min. 800 mm (2.6 ft)
- Flow rates:
 - Service/demineralizing and softening 5 - 50 m/h (2 - 20 gpm/ft²)
 - Service/sodium or amine cycle polishing 38 - 75 m/h (15 - 30 gpm/ft²)
 - Backwash See Figure 1
 - Co-current regeneration/displacement rinse 1 - 10 m/h (0.4 - 4 gpm/ft²)
 - Counter-current regeneration/displacement rinse 5 - 20 m/h (2 - 8 gpm/ft²)
- Total rinse requirement 2 - 5 bed volumes
- Regenerant 1 - 8% H₂SO₄, 4 - 8% HCl or 8 - 12% NaCl

[†] For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775)

Typical Properties and Applications

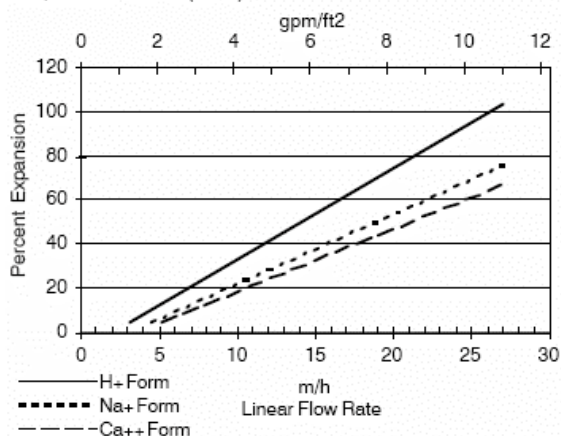
DOWEX MARATHON C-10 strong acid cation exchange resin is a uniform particle size resin designed for demineralizing, softening, and single-bed condensate polishing applications. The uniform particle size beads exhibit more uniform exhaustion, regeneration, and backwash compared to conventionally sized resins. The higher level of crosslinking in DOWEX MARATHON C-10 resin also shows exceptional stability to compressive, osmotic, and oxidative stresses.

Packaging

25 liter bags, 1 cubic foot bags or 5 cubic foot fiber drums.

Figure 1. Backwash Expansion Data

Temperature = 25° C (77° F)



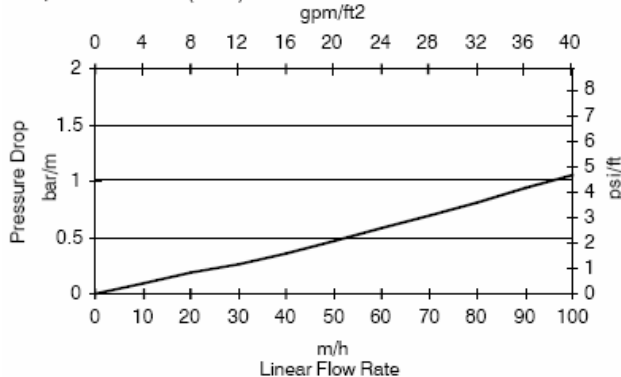
For other temperatures use:

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

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

Figure 2. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

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

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

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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