



DOWEX MARATHON MSC

Uniform Particle Size, High Capacity, Macroporous Cation Exchange Resin for Water Demineralization Applications

Product	Type	Matrix	Functional group
DOWEX* MARATHON* MSC	Strong acid cation	Styrene-DVB, macroporous	Sulfonic acid

Guaranteed Sales Specifications		Na ⁺ form	H ⁺ form
Total exchange capacity, min.	eq/l	1.7	1.6
	kgr/ft ³ as CaCO ₃	37.1	35.0
Water content	%	44 - 50	50 - 56
Uniformity coefficient, max.		1.1	1.1

Typical Physical and Chemical Properties		Na ⁺ form	H ⁺ form
Mean particle size [†]	µm	500 ± 50	520 ± 50
Whole beads	%	95 - 100	95 - 100
Total swelling (Na ⁺ → H ⁺)	%	4	4
Particle density	g/ml	1.28	1.20
Shipping weight	g/l	800	760
	lbs/ft ³	50	47

Recommended Operating Conditions	
Maximum operating temperature	150°C (300°F)
pH range	0-14
Bed depth, min.	800 mm (2.6 ft)
Flow rates:	
Service/fast rinse	5-50 m/h (2-20 gpm/ft ²)
Backwash	See figure 1
Co-current regeneration/displacement rinse	1-10 m/h (0.4-4 gpm/ft ²)
Counter-current regeneration/displacement rinse	5-20 m/h (2-8 gpm/ft ²)
Total rinse requirement	3-6 Bed volumes
Regenerant	1-10% H ₂ SO ₄ , 4-8% HCl or 8-12% NaCl

[†]For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775/CH 171-476-E).

DOWEX Ion Exchange Resins

For more information about DOWEX resins,
call Dow Liquid Separations business:

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<http://www.dow.com/liquidseps>

Typical properties and applications:

DOWEX MARATHON MSC strong acid cation resin is a highly cross-linked resin with high porosity giving excellent osmotic shock resistance and chemical and thermal stability.

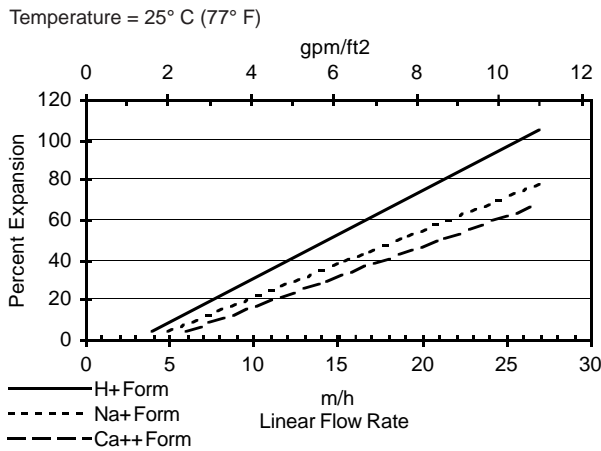
The resin has a variety of uses such as:

- Hot process softening
- Demineralization
- Adsorbent
- Processes with oxidizing conditions
- Recovery of metals from plating baths

Packaging

25 liter bags or 5 cubic feet fiber drums.

Figure 1. Backwash Expansion Data

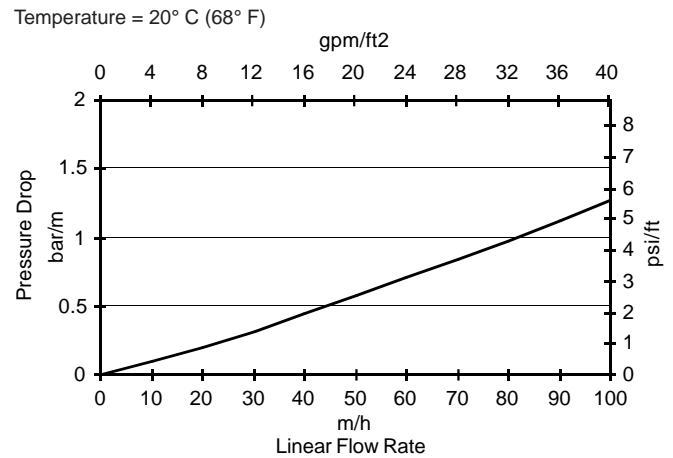


For other temperatures use:

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

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

Figure 2. Pressure Drop Data



For other temperatures use:

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

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

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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