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DOWEX™ MARATHON™ MSC

A Uniform Particle Size, High Capacity Macroporous Cation Exchange Resin for Industrial Softening and 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
	kg/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	550 ± 50	575 ± 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/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 3 - 6 Bed volumes
- Regenerant 1-10% 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™ MSC strong acid cation resin is a highly cross-linked resin with high porosity giving excellent osmotic shock resistance and chemical and thermal stability.

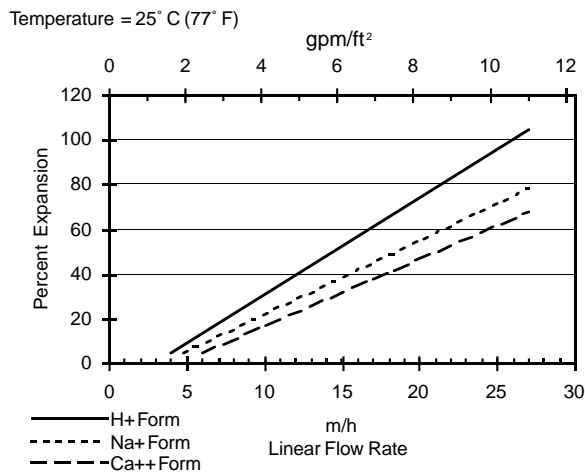
The resin has a variety of uses, such as:

- 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

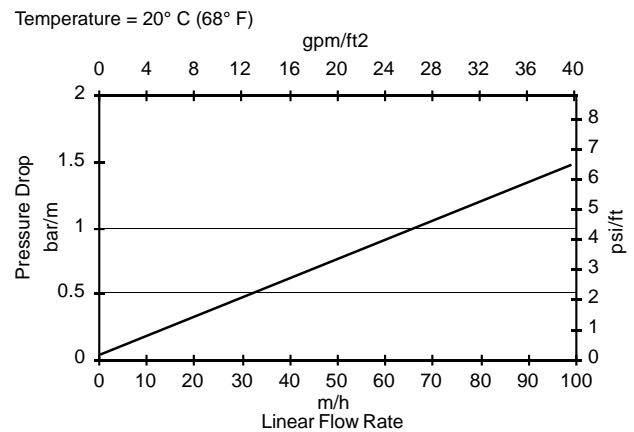


For other temperatures use:

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

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

Figure 2. Pressure Drop Data



For other temperatures use:

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

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

DOWEX™ Ion Exchange Resins

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

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 Pacific: +60 3 7958 3392
 Japan: +813 5460 2100
 China: +86 21 2301 9000

<http://www.dowex.com>

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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