LENNTECH
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289

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
	kgr/ft³ 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 ($Na^+ \rightarrow H^+$)	%	4	4
Particle density	g/mL	1.28	1.20
Shipping weight	g/L	800	760
	lbs/ft³	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% H_2SO_4, 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.

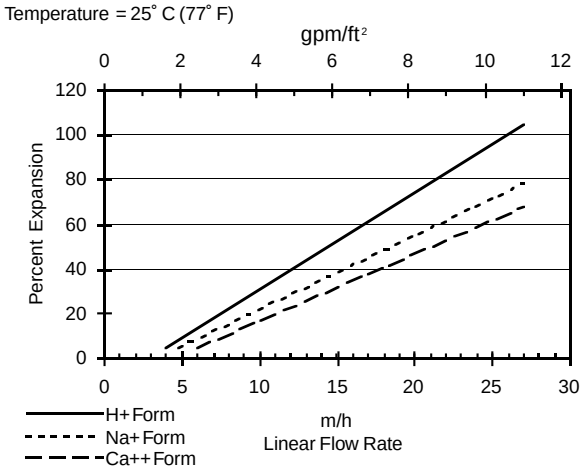
The resin has a variety of uses, such as:

- 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

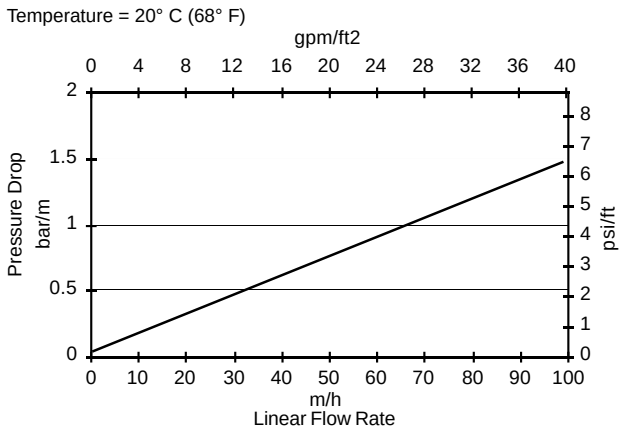


For other temperatures use:

$F_T = F_{77°F}$ [1+ 0.008 ($T_{°F}$ -77)], where F ≡ gpm/ft²

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

Figure 2. Pressure Drop Data



For other temperatures use:

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

$P_T = P_{68°F}$ / (0.014 $T_{°F}$ + 0.05), where P ≡ 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.

Form No. 177-01786-0707