



# DOWEX MARATHON A

**A Uniform Particle Size, High Capacity, Strong Base Anion Exchange Resin for Demineralization Applications**

Product	Type	Matrix	Functional group
DOWEX* MARATHON* A	Type 1 strong base anion	Styrene-DVB, gel	Quaternary amine

Guaranteed Sales Specifications		Cl <sup>-</sup> form	OH <sup>-</sup> form
Total exchange capacity, min.	eq/l	1.3	1.0
	kgr/ft <sup>3</sup> as CaCO <sub>3</sub>	28.4	21.9
Water content	%	50 - 60	60 - 72
Uniformity coefficient, max.		1.1	1.1

Typical Physical and Chemical Properties		Cl <sup>-</sup> form	OH <sup>-</sup> form
Mean particle size <sup>†</sup>	μm	575 ± 50	610 ± 50
Whole uncracked beads	%	95 - 100	95 - 100
Total swelling (Cl <sup>-</sup> → OH <sup>-</sup> )	%	20	20
Particle density	g/ml	1.08	1.06
Shipping weight	g/l	670	640
	lbs/ft <sup>3</sup>	42	40

Recommended Operating Conditions	
Maximum operating temperature:	
OH <sup>-</sup> form	60°C (140°F)
Cl <sup>-</sup> form	100°C (212°F)
pH range	0-14
Bed depth, min.	800 mm (2.6 ft)
Flow rates:	
Service/fast rinse	5-60 m/h (2-24 gpm/ft <sup>2</sup> )
Backwash	See figure 1
Co-current regeneration/displacement rinse	1-10 m/h (0.4-4 gpm/ft <sup>2</sup> )
Counter-current regeneration/displacement rinse	5-20 m/h (2-8 gpm/ft <sup>2</sup> )
Total rinse requirement	3-6 Bed volumes
Regenerant:	
Type	2-5% NaOH
Temperature	Ambient or up to 50°C (122°F) for silica removal
Organic loading, max.	3g KMnO <sub>4</sub> /l resin

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

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# DOWEX Ion Exchange Resins

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

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 Australia . . . . . (+61) 2-9776-3226  
<http://www.dow.com/liquidseps>

## Typical properties and applications:

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

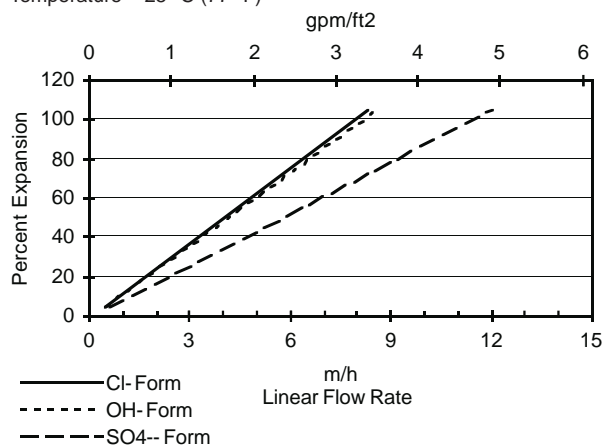
DOWEX MARATHON A resin results in rapid exchange kinetics during operation, more complete regeneration of the resin, and faster, more thorough rinse following regeneration. It can be used for all types of water but especially for waters that have a high percentage of silica and carbon dioxide.

## Packaging

25 liter bags or 5 cubic feet fiber drums.

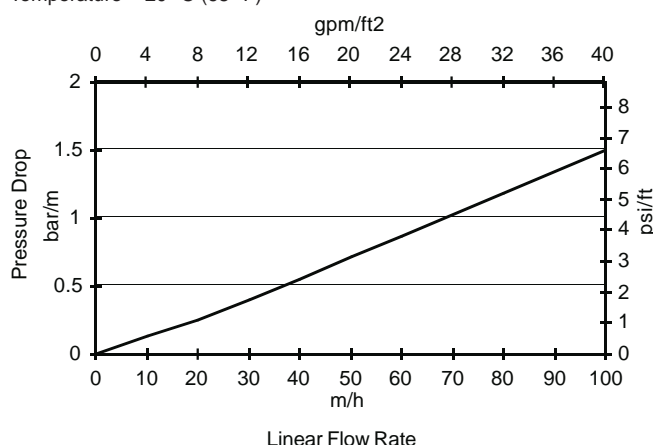
**Figure 1. Backwash Expansion Data**

Temperature = 25° C (77° F)



**Figure 2. Pressure Drop Data**

Temperature = 20° C (68° F)



## For other temperatures use:

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

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

## 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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