DOWEX MARATHON WBA

A Uniform Particle Size, High Capacity, Weak Base Anion Exchange Resin for Water Demineralization Applications

Product	Type	Matrix	Functional group
DOWEX™ MARATHON™ WBA	Weak base anion	Styrene-DVB, macroporous	Tertiary amine

Guaranteed Sales Specifications		FB (free base) form
Total exchange capacity, min.	eq/L	1.3
	kgr/ft³ as $CaCO_3$	28.4
Water content	%	50 - 60
Uniformity coefficient, max.		1.1

Typical Physical and Chemical Properties		FB (free base) form
Mean particle size†	µm	525 ± 50
Whole beads	%	95 - 100
Total swelling (FB → HCl)	%	20
Particle density	g/mL	1.04
Shipping weight	g/L	640
	lbs/ft³	40

Recommended Operating Conditions

- Maximum operating temperature: 100°C (212°F)
- pH range: 0 - 7
- Bed depth, min.: 800 mm (2.6 ft)
- Flow rates:
  - Service/fast rinse: 5 - 60 m/h (2 - 24 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 - 4 Bed volumes
- Regenerant: 2 - 5% NaOH

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

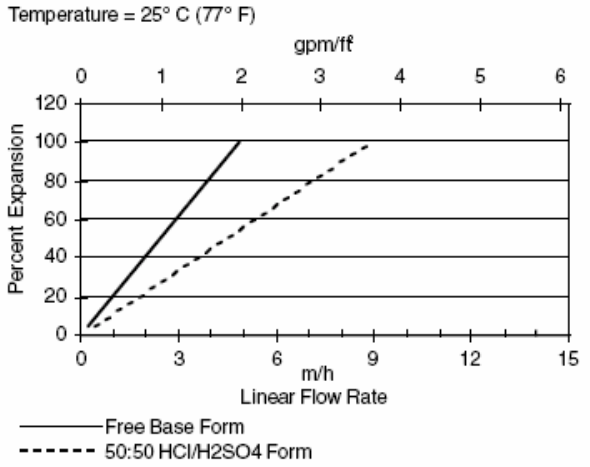
Typical properties and applications

DOWEX MARATHON WBA resin is a high capacity, macroporous, weak base anion resin of narrow bead-size distribution. The small uniform bead size yields significantly higher throughput capacity than macroporous weak base resins with conventional polydispersed bead size distribution. This means more water can be produced per regeneration so regeneration costs are minimized. DOWEX MARATHON WBA resin is especially well suited for use with strong base resins. It effectively removes mineral acids (formed by Cl^- and SO_4^{-2}) and organics, reducing the ionic load on the strong base anion and protecting it from organic fouling.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Backwash Expansion Data

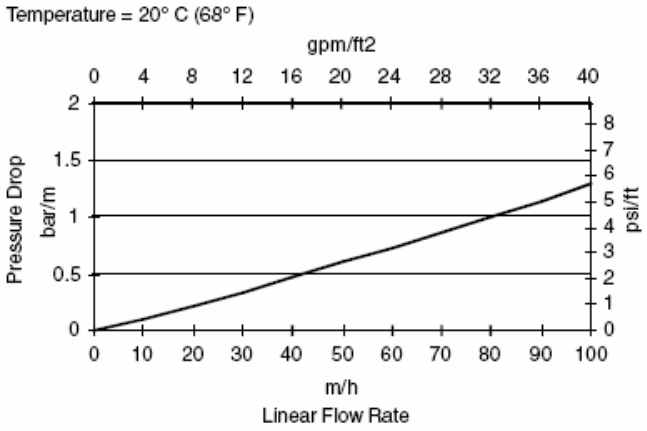


For other temperatures use:

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

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

Figure 2. Pressure Drop Data



For other temperatures use:

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

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

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.