



DOWEX MARATHON 11

A Uniform Particle Size, Porous Gel, Strong Base Anion Exchange Resin Specifically Designed for Demineralization of High Organic Waters and as an Organic Scavenger

Product	Type	Matrix	Functional group
DOWEX* MARATHON* 11	Type 1 strong base anion	Styrene-DVB gel	Quaternary amine

Guaranteed Sales Specifications		Cl ⁻ form
Total exchange capacity, min.	eq/l	1.3
	kg/ft ³ as CaCO ₃	28.4
Water content	%	48 - 58
Uniformity coefficient, max.		1.1

Typical Physical and Chemical Properties		Cl ⁻ form
Whole uncracked beads	%	95 - 100
Mean particle size†	µm	550 ± 50
Total swelling (Cl ⁻ → OH ⁻)	%	20
Particle density	g/ml	1.08
Shipping weight	g/l	670
	lbs/ft ³	42

Recommended Operating Conditions

- Maximum operating temperature:
 - OH⁻ form 60°C (140°F)
 - Cl⁻ form 100°C (212°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 2 - 5 Bed volumes
- Regenerant:
 - Type 2-5% NaOH
 - Type (organic screen) 10% NaCl / 1% NaOH mixture
 - Temperature Ambient or up to 50°C (122°F) for silica removal
 - Temperature (organic screen) Ambient or up to 50°C (122°F)

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

Typical properties and applications

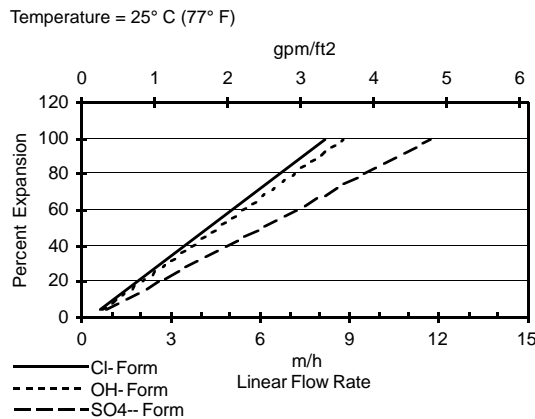
DOWEX MARATHON 11 strong base anion resin is a high capacity resin with excellent kinetics, very good regeneration efficiency and very good resistance to organic fouling. It also has excellent resistance to osmotic shock and good physical and chemical stability.

It's unique resistance to organic fouling enables this resin to be used in Cl form as an organic scavenger with great success. DOWEX MARATHON 11 anion exchange resin can be used to remove organics in both single bed and mixed bed units.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Backwash Expansion Data

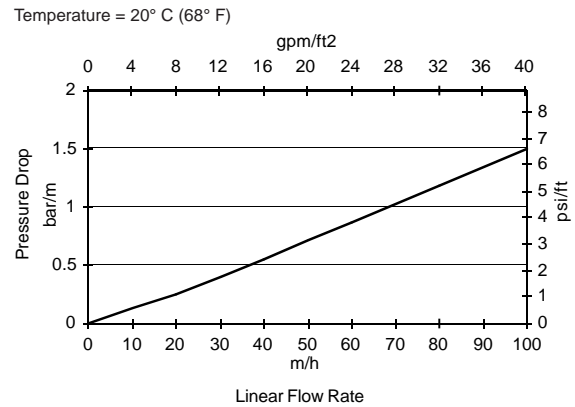


For other temperatures use:

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

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

Figure 2. Pressure Drop Data



For other temperatures use:

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

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

DOWEX Ion Exchange Resins

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

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 Latin America: (+55) 11-5188-9277
 Europe: (+32) 3-450-2240
 Japan: (+81) 3-5460-2100
 Australia: (+61) 3-9226-3545
<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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