



DOWEX UPCORE MAC-3

A Weak Acid Cation Exchange Resin Specifically Designed for the UPCORE System

Product	Type	Matrix	Functional group
DOWEX* UPCORE* MAC-3	Weak acid cation	Polyacrylic, macroporous	Carboxylic acid

Guaranteed Sales Specifications			H ⁺ form
Total exchange capacity, min.		eq/l	3.8
		kgr/ft ³ as CaCO ₃	83.0
Water content		%	42 - 52
Bead size distribution [†]			
Range, 0.4 - 1.2 mm, min.		%	90
> 1.2 mm, max. (16 mesh)		%	1
< 0.35 mm, max. (45 mesh)		%	1
Whole beads, min.		%	95

Typical Physical and Chemical Properties			H ⁺ form
Total swelling (H ⁺ → Ca ⁺)		%	15
Particle density		g/ml	1.18
Shipping weight		g/l	750
		lbs/ft ³	47

Recommended Operating Conditions	• Maximum operating temperature	120°C (250°F)
	• pH range	5-14
	• Bed depth, min.	1,000 mm (3.3 ft)
	• Pressure drop, design max.	1.5 bar (22 psi)
	• Pressure drop, max.	2.5 bar (37 psi)
	• Flow rates:	
	Service/fast rinse	5-50 m/h (2-20 gpm/ft ²)
	Regeneration/displacement rinse	5-50 m/h (2-20 gpm/ft ²) for H ₂ SO ₄ 6-12 m/h (2.4-4.8 gpm/ft ²) for HCl
• Total rinse requirement	3 - 6 Bed volumes	
• Regenerant	1-5% HCl, 0.5-0.8% H ₂ SO ₄	

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

Typical Properties and Applications

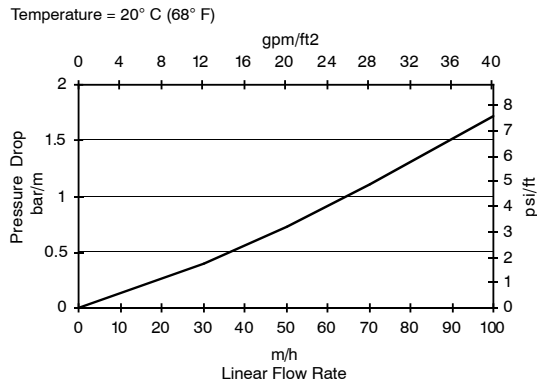
DOWEX UPCORE MAC-3 macroporous weak acid cation exchange resins contain carboxylic acid functional groups attached to a polyacrylic-divinylbenzene matrix. The particle size is specially chosen for use in the UPCORE packed bed counter-current regeneration system.

DOWEX UPCORE MAC-3 resin efficiently removes hardness associated with alkalinity. When used in combination with DOWEX UPCORE Mono C-600 resin, DOWEX UPCORE MAC-3 resin can be regenerated with effluent acid from the strong acid cation regeneration. This results in highly efficient regeneration of the cation resin pair.

Packaging

25 liter bags or 5 cubic feet fiber drums

Figure 1. Pressure Drop Data



For other temperatures use:

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

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

DOWEX Ion Exchange Resins

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

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 Europe: (+32) 3-450-2240
 Pacific (ex. China): +800-7776-7776
 China: +10-800-600-0015
<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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