



DOWEX MR-3 LC NG

A Mixed Ion Exchange Resin for Demineralization in Nuclear and High Purity Demineralization Water Applications

Product	Resin Ratio	Matrix	Functional group
DOWEX® MR-3 LC NG	1:1 by equivalents cation:anion	Styrene-DVB, gel	Sulfonic acid and quaternary amine

Guaranteed Sales Specifications		OH ⁻ form	H ⁺ form
Total exchange capacity, min.	eq/l	1.2	2.0
	kgr/ft ³ as CaCO ₃	26.2	43.7
Water content	%	60 max.	46 - 52
Bead size distribution†			
>1.2 mm, max. (16 mesh)	%	2	2
<0.42 mm, max. (40 mesh)	%	1	1
<0.3 mm, max. (50 mesh)	%	0.2	0.1
Whole uncracked beads, min.	%	95	95
Crush strength			
Average, min.	g/bead	350	500
>200 g/bead, min.	%	95	-
>300 g/bead, min.	%	-	95

Ionic Conversions										H ⁺
Cation resin										99.7%, min.
Anion resin		OH ⁻		Cl ⁻		CO ₃ ⁻		SO ₄ ⁼		
		95% min.		0.1% max.		5% max.		0.1% max.		
Trace metals, ppm dry resin, max.										
	Na	Fe	Cu	Al	Mg	Ca	Co	Pb	Hg	Heavy Metals (as Pb)
Cation	50	50	10	50	50	50	30	10	10	10
Anion	40	50	10	50	50	50	30	10	10	10

Typical Physical and Chemical Properties		OH ⁻ form	H ⁺ form
Particle density	g/ml	1.08	1.22
Shipping weight	g/l lbs/ft ³		720 45

Recommended Operating Conditions	
Maximum operating temperature	60°C (140°F)
pH range	0-14
Bed depth, min.	800 mm (2.6 ft)

†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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Typical properties and applications:

DOWEX® MR-3 LC NG ion exchange resin is a 1:1 equivalent mixture of DOWEX HGR NG (H) cation and DOWEX SBR LC NG (OH) anion resins. This mixed resin product consists of high purity cation and anion components to enable high quality water production in nuclear applications. Residual chloride and sulfate levels are each less than

0.1% of the total ionic sites of the anion resin.

DOWEX MR-3 LC NG resin may be used in a variety of applications, including:

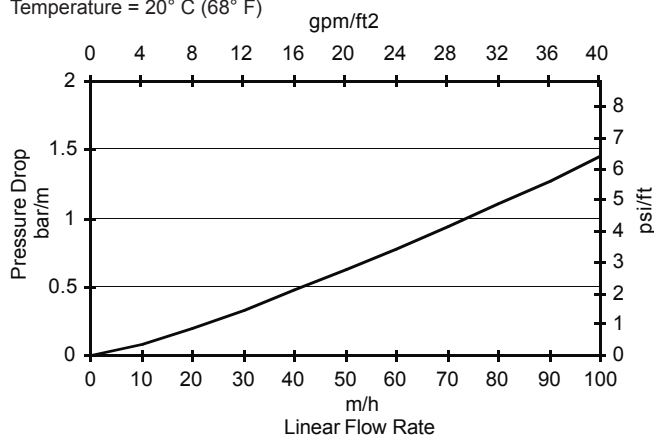
- radwaste treatment
- pond water treatment
- reactor coolant cleanup
- high purity mixed bed demineralization

Packaging

50 liter or 5 cubic feet fiber drums.

Figure 1. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

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

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

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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