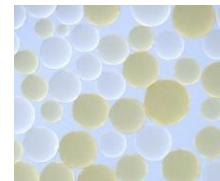


DuPont™ AmberTec™ MR-3 LC H/OH Ion Exchange Resin

Non-regenerable Mixed Bed Ion Exchange Resin for Demineralization Applications and Final Polishing for Ultra Pure Water Applications

Description

DuPont™ AmberTec™ MR-3 LC H/OH ion exchange resin is a high purity grade, mixed resin recommended as a polishing mixed bed to complement reverse osmosis systems, working mixed resin beds or EDI systems. In properly designed ultrapure water systems, AmberTec™ MR-3 LC H/OH will deliver 18-MΩ·cm quality water as a polishing mixed bed. This mixed bed product is particularly suitable for use in the polishing of high-purity water for solar photovoltaic panel industry and other similar industries.



The resins are mixed to give a stoichiometric equivalent of cation and anion exchange capacity on a 1:1 equivalent basis, and the resin mixture exhibits no clumping.

Applications

- Final Polishing mixed bed

Historical Reference

AmberTec™ MR-3 LC H/OH ion exchange resin has previously been sold as DOWEX™ MR-3 LC NG ion exchange resin. It's recommended to replace DOWEX MONOSPHERE™ MR-575 LC NG ion exchange resin which was discontinued.

Typical Properties

	Cation Resin	Anion Resin
Physical Properties		
Copolymer	Styrene-divinylbenzene	Styrene-divinylbenzene
Matrix	Gel	Gel
Type	Strong acid cation	Strong base anion, Type I
Functional Group	Sulfonic acid	Trimethylammonium
Physical Form	Dark amber, translucent, spherical beads	White to yellow, translucent, spherical beads
Chemical Properties		
Ionic Form as Shipped	H ⁺	OH ⁻
Total Exchange Capacity	≥ 2.0 eq/L	≥ 1.2 eq/L
Water Retention Capacity	46-52%	60% max
Ionic Conversion		
H ⁺	≥ 99%	
OH ⁻		≥ 95%
CO ₃ ²⁻		≤ 5%
Cl ⁻		≤ 0.1%
Particle Size §		
< 300 µm	≤ 0.1%	≤ 0.2%
< 400 µm	≤ 1%	≤ 1%
> 1180 µm	≤ 2%	≤ 2%
Purity		
Metals, dry basis:		
Na	≤ 50 mg/kg	≤ 40 mg/kg
Ca	≤ 50 mg/kg	≤ 50 mg/kg
Mg	≤ 50 mg/kg	≤ 50 mg/kg
Fe	≤ 50 mg/kg	≤ 50 mg/kg
Cu	≤ 10 mg/kg	≤ 10 mg/kg
Al	≤ 50 mg/kg	≤ 50 mg/kg
Stability		
Whole Uncracked Beads	≥ 95%	≥ 95%
Friability:		
Average	≥ 500 g/bead	≥ 350 g/bead
> 200 g/bead	≥ 95%	≥ 95%
Density		
Shipping Weight	721 g/L (DuPont™ AmberTec™ MR-3 LC H/OH)	

§ For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

Suggested Operating Conditions

Maximum operating temperature †	60°C (140°F)
pH Range (Stable)	0 – 14

† Operating mixed beds at elevated temperatures, for example above 60 – 70°C (140 – 158°F), may impact the purity of the loop and resin life. Contact our technical representative for details.

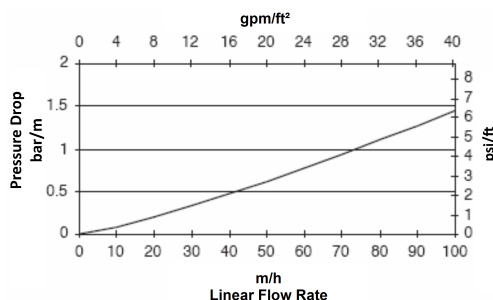
For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for [mixed beds](#) (Form No. 45-D01127-en) or [separate beds](#) (Form No. 45-D01131-en) in water treatment, please refer to our Tech Facts.

Hydraulic Characteristics

Estimated pressure drop for DuPont™ AmberTec™ MR-3 LC H/OH ion exchange resin as a function of service flowrate at 20°C (68°F) is shown in Figure 1. These pressure drop expectations are valid at the start of the service run with clean water. Estimated pressure drop at other water temperatures can be calculated with the provided equations.

Figure 1: Pressure Drop

Temperature = 20°C (68°F)



For other temperatures use:

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

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

Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

Please be aware of the following:

- **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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