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ROTEK RSL-MBB

Final Polishing Mixed Bed Resin

Description

RSL-MBB resin is a nuclear grade ion exchange resin mixed bed which is specifically designed and manufactured for final polishing service in the highest purity water treatment applications. This pre-mixed resin product is composed of an equivalent mixture of high capacity, fully regenerated strong acid and strong base gel type ion exchange resins. The resin mixture exhibits no clumping. The particle size of the component resins is specially designed to reduce the natural tendency of cation and anion resins to separate when handled in a water slurry. This ensures perfect mixed bed equilibrium performance, since the resins will remain intimately mixed in the final polishing vessels. The uniform particle size of the resins maximizes the kinetic performance of the mixed bed allowing the use of high service flow rates to achieve the ultimate balance of pressure drop and purity. All these characteristics are essential to produce water of the highest achievable purity with a minimum volume of rinse water.

RSL-MBB resin is specifically designed for use in non-regenerable final polishing mixed beds in ultra-pure water systems in the semiconductor industry and similar demanding applications. The leakage of all ionic species, silica, total organic carbon, and sub-micron particles have all been driven to a new low level with RSL-MBB resin. Free of the limitations imposed by regenerable systems, the characteristics of this new semi-conductor grade mixed bed resin concentrate on optimum properties during service. RSL-MBB resin is not recommended for use in regenerable mixed bed applications.

Basic Resin Properties

In non-regenerable final polishing applications, UPW performance is much more significant than basic resin properties. It is still important to know that the resins used in the application are of the highest capacity and total quality. The typical properties of the resins used in RSL-MBB resin are shown below. These values are listed to show that both the cation and anion resins used to make RSL-MBB resin meet stringent standards for high capacity, uniform particle size ion exchange resins.

Typical Properties

These properties are typical but do not constitute specifications.

		Cation H^+	Anion OH^-
Total exchange capacity, eq/L		≥ 1.70	≥ 0.90
Moisture holding capacity, %		44.0 - 51.0	54.0 - 60.0
Particle size			
Uniformity coefficient		≤ 1.20	≤ 1.20
Harmonic mean size		600 - 700 µm	580 - 680 µm
H form	% of sites	≥ 95	-
OH form	% of sites	-	≥ 90.0
Cl form	% of sites	-	≤ 0.5
CO_3 form	% of sites	-	≤ 5.0
SO_4 form	% of sites	-	≤ 0.1

Suggested Operating Conditions

(Product may be operated successfully outside these conditions, but results may not be optimum)

Maximum operating temperature	60°C	(140°F)
Feed water temperature	15 to 25°C	(60 to 77°F)
Minimum bed depth	900 mm	(3 feet)
Service flow rate	20 to 40 BV*/h	
Recommended *influent* water quality		
Inlet Resistivity	> 17 MΩ.cm	
Inlet Silica	<2 ppb	
Inlet Total Organic Carbon	< 15 ppb	

** 1 BV (Bed Volume) = 1 m^3 solution per m^3 resin (1BV/h = 0.125 gpm/ft3)*