AMBERLITE™ MB20 H/OH Ion Exchange Resin

Mixture of Gaussian, Gel, Strong Acid Cation and Strong Base Anion Exchange Resins for Industrial Demineralization Applications

Description

AMBERLITE™ MB20 H/OH Ion Exchange Resin is an equilibrated, homogeneous mixture of a dark strong acid cation and a clear strong base anion exchange resins. It is fully regenerated, ready-to-use, pre-mixed resin developed for the production of high-purity water in working and mixed bed polishing applications. The pre-mixed resin also allows for faster initial rinse-up prior to service, which minimizes rinse wastewater volume.

AMBERLITE MB20 H/OH is most commonly used in service deionization for a full demineralization of water when complete removal of silica and CO_2 is required. In most of the applications, the conductivity of the treated water is much lower than 0.1 µS/cm and the pH is neutral. If necessary, the resin can be regenerated after exhaustion. Both components must be separated by backwashing and regenerated separately.

AMBERLITE MB20 H/OH is the reference mixed bed for service deionization. The resin mixture is prepared from high-quality components and the proprietary manufacturing process ensures consistency from batch to batch. This enables the resin to perform in a highly stable manner delivering high-quality treated water consistently in both working and polishing mixed beds. The consistency in quality combined with visible separation of cation and anion resins prior to regeneration make AMBERLITE MB20 H/OH a trusted choice for mixed bed pool systems.

Applications

- Service deionization
- Working mixed bed on tap water in small installations
- Mixed bed polishing on RO or demineralized water

System Designs

- Externally-regenerated mixed beds
- Non-regenerated mixed beds

Historical Reference

AMBERLITE™ MB20 H/OH Ion Exchange Resin has previously been sold as AMBERLITE™ MB20 Ion Exchange Resin.

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May 2018

Typical Physical and Chemical 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	Clear amber, translucent, spherical beads
Volume Ratio	38 – 44%	62 – 56%
Chemical Properties		
Ionic Form as Shipped	H^+	OH^-
Particle Size §		
< 300 µm	≤ 3.0%	
Density		
Shipping Weight	710 g/L	

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

Product Performance

Operating Capacity

The operating capacity of AMBERLITE™ MB20 H/OH Ion Exchange Resin can be estimated using the following formula, which gives an approximate determination of volume of water that can be treated:

$$BV = \frac{500}{TDS\ (meq/L)} \qquad \text{or} \qquad {}^{gal}/_{ft^3} = \frac{187000}{TDS\ (as\ ppm\ CaCO_3)}$$

where BV (Bed Volume) is the number of liters of a feedwater containing a TDS (Total Dissolved Solids) given in meq/L that can be demineralized with one liter of the resin mixture when run to exhaustion (or US gallons per cubic foot of the resin with TDS as ppm $CaCO_3$).

Treated Water Quality

AMBERLITE™ MB20 H/OH Ion Exchange Resin provides a high-quality demineralized water with a conductivity < 0.1 µS/cm and neutral pH that will satisfy most of the cartridge and laboratory applications.

Suggested Operating Conditions**

Temperature Range (H^+/OH^- form) ‡	5 – 60°C (41 – 140°F)
pH Range	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. 177-03705) or separate beds (Form No. 177-03729) in water treatment, please refer to our Tech Facts.

Hydraulic Characteristics

Estimated bed expansion of the cation component (Figure 1a) and of the anion component (Figure 1b) of AMBERLITE™ MB20 H/OH Ion Exchange Resin as a function of backwash flowrate and temperature are shown.

Estimated pressure drop for AMBERLITE MB20 H/OH as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water and a well-classified bed.

Figure 1a: Backwash Expansion – Cation

Temperature = 10 – 60°C (50 – 140°F)

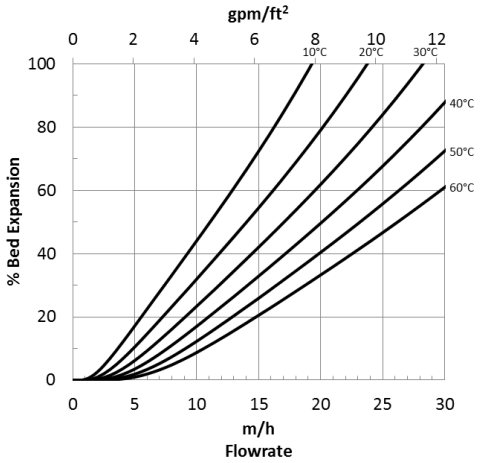


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)

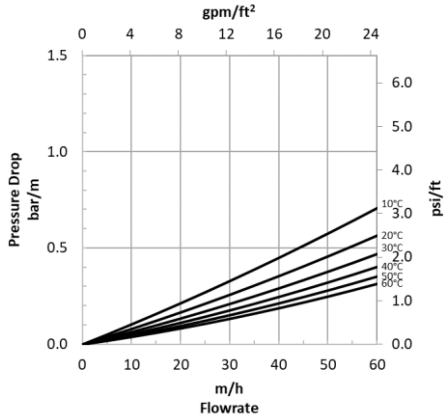
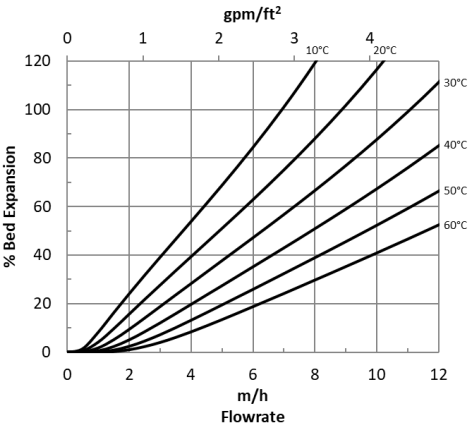


Figure 1b: Backwash Expansion – Anion

Temperature = 10 – 60°C (50 – 140°F)



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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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