

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 removal of silica and CO₂ 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Historical Reference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.

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	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. 45-D00954-en).

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:

$$BV = \frac{500}{TDS \text{ (meq/L)}} \quad \text{or} \quad \frac{\text{gal}}{\text{ft}^3} = \frac{187000}{TDS \text{ (as ppm CaCO}_3\text{)}}$$

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 CaCO₃).

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. 45-D01127-en) or [separate beds](#) (Form No. 45-D01131-en) 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)

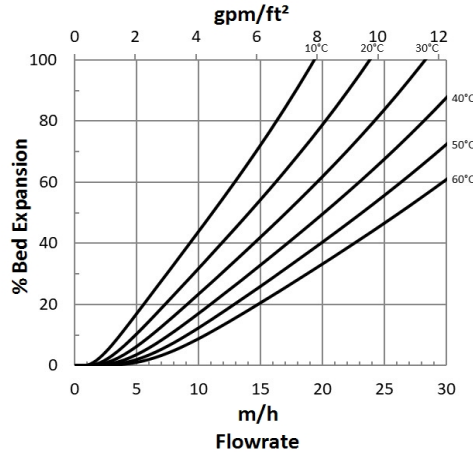


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)

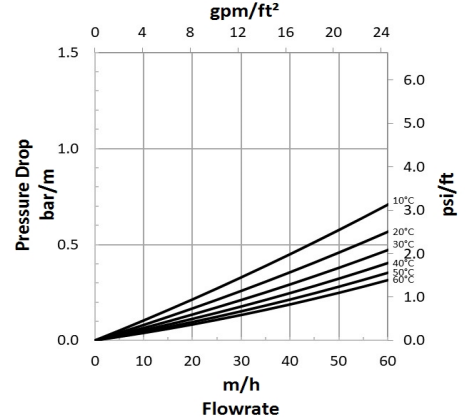
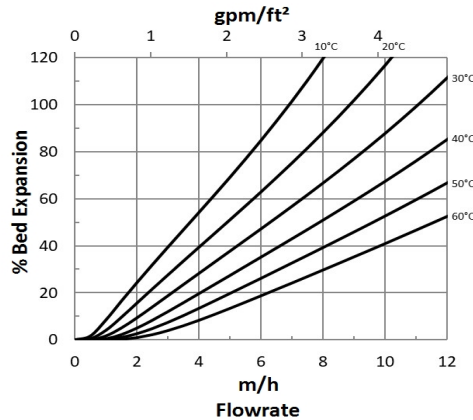


Figure 1b: Backwash Expansion – Anion

Temperature = 10 – 60°C (50 – 140°F)



Product Stewardship

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Customer Notice

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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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