



## **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<sub>2</sub> 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### **Historical Reference**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 Physical and Chemical Properties\*\*

|                            | Cation Resin                             | Anion Resin                               |
|----------------------------|--|---|
| <b>Physical Properties</b> |  |   |
| 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 |
| <b>Volume Ratio</b>        | 38 – 44%                                 | 62 – 56%                                  |
| <b>Chemical Properties</b> |  |   |
| Ionic Form as Shipped      | H <sup>+</sup>                           | OH <sup>-</sup>                           |
| <b>Particle Size</b> §     |  |   |
| < 300 µm                   |  | ≤ 3.0%                                    |
| <b>Density</b>             |  |   |
| 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:

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

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<sub>3</sub>).

### 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 <sup>+</sup> /OH <sup>-</sup> 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.

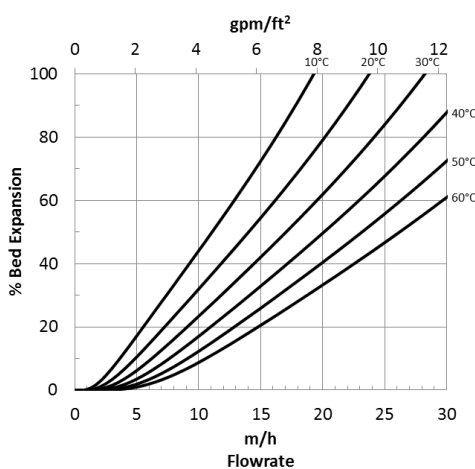
## Hydraulic Characteristics

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.

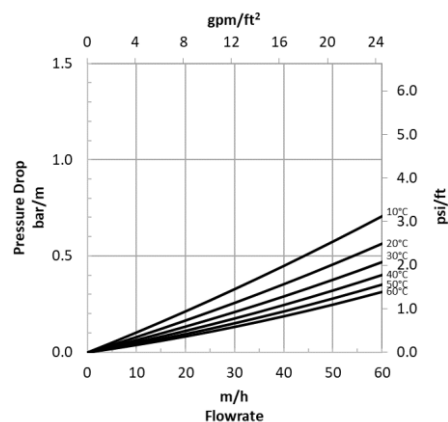
**Figure 1a: Backwash Expansion – Cation**

Temperature = 10 – 60°C (50 – 140°F)



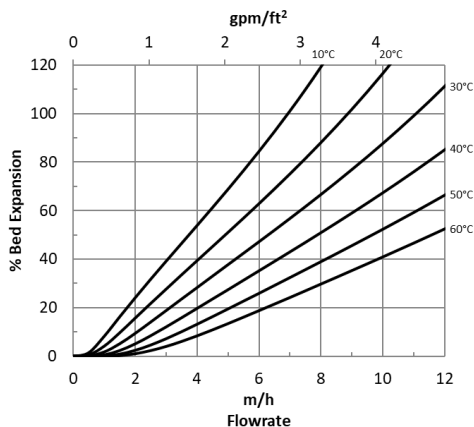
**Figure 2: Pressure Drop**

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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