RESINTECH INC
INNOVATIONS IN ION EXCHANGE

MBD-10

MIXED BED RESIN
HIGH PURITY GRADE
H/OH FORM

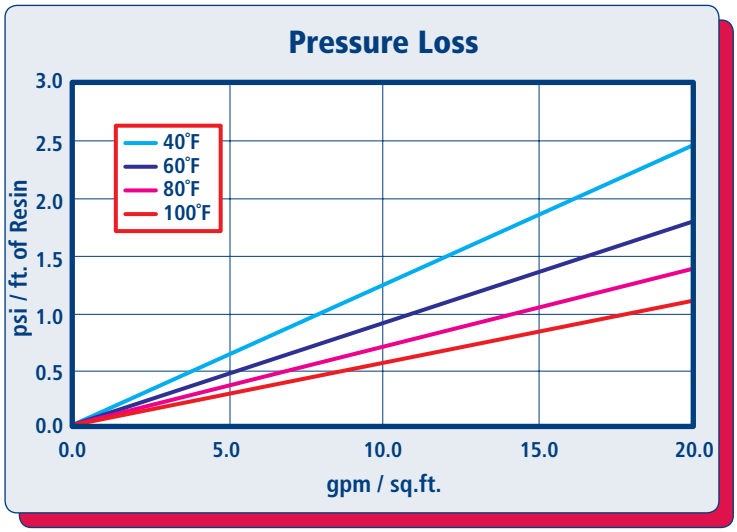
RESINTECH MBD-10 is a one-to-one equivalent mixture of CG8-H-BL (a hydrogen form strong acid cation resin) and SBG1-OH (a hydroxide form type 1 strong base anion resin). *MBD-10* utilizes a dark colored cation resin and a light colored anion resin and is designed to produce very high water quality and to separate easily for regeneration. *RESINTECH MBD-10* is intended for use in all mixed bed deionization applications that require high resistivity and high capacity. *MBD-10* is particularly well suited for portable exchange and other polishing applications. *MBD-10* is supplied ready to use with the cation component in the hydrogen form and the anion component in the hydroxide form. Available in grades.

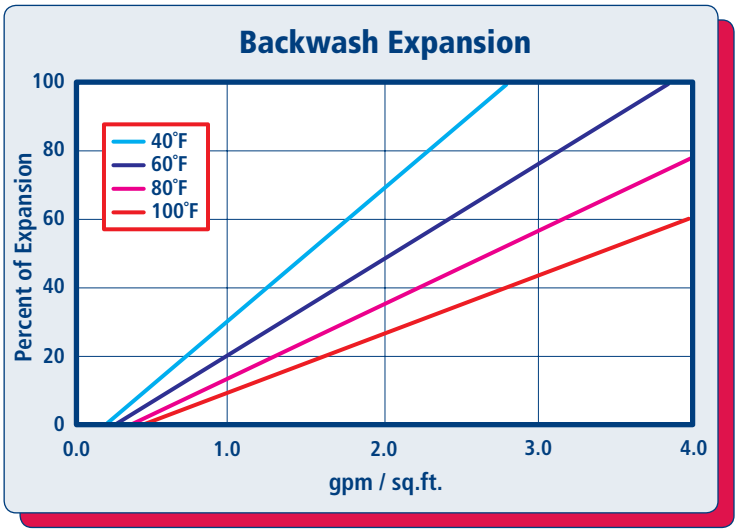
FEATURES & BENEFITS

- **HIGHEST OPERATING CAPACITY**
  High capacity anion component results in the highest throughput possible with mixed bed resin
- **EASE OF SEPARATION**
  Density and color difference between cation and anion components results in good backwash separation during regeneration
- **SUPERIOR THERMAL AND PHYSICAL STABILITY**
  High crosslinked anion component provides superior resistance to thermal and physical stresses
- **IDEAL FOR PORTABLE EXCHANGE DI SYSTEMS**
  All resin parameters are optimized for use in portable exchange DI systems where the resin is regenerated at a central facility
- **COMPLIES WITH US FDA REGULATIONS**
  Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

For applications requiring very high resistivity, 10 bed volumes of rinse should be passed through the resin prior to use.

HYDRAULIC PROPERTIES





PRESSURE LOSS

The graph above shows the expected pressure loss of *ResinTech MBD-10* per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH

The graph above shows the expansion characteristics of *ResinTech MBD-10* as a function of flow rate at various temperatures.

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RESINTECH® MBD-10

Grade	Product Name	Description
SC	MBD-10-SC	Tested to 18 megohm resistivity as a polisher. Rinses to below 50 ppb TOC.
LTOC	MBD-10-LTOC	Tested to 18 megohm resistivity as a polisher. Rinses to below 10 ppb TOC.

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer type	Gel
Functional Group	
Cation component	Sulfonic acid
Anion component	Trimethylamine
Physical Form	Spherical beads
Ionic Form as shipped	Hydrogen/Hydroxide
Column Capacity	>0.60 meq/mL
Volume ratio Cation/Anion	40/60 percent
Water Retention	55 to 60 percent
Approximate Shipping Weight	43 lbs per cu. ft.
Screen size distribution (U.S. Mesh)	16 to 50
Resin Color	
Cation component	Brown to black
Anion component	Amber

Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	140˚F
Maximum intermittent temperature	180˚F
Minimum bed depth	24 inches
Backwash expansion	50 to 100 percent
Maximum pressure loss	25 psi
Operating pH range	2 to 12 SU
Service flow rate	
Working	1 to 5 gpm per cu. ft.
Polishing	3 to 15 gpm per cu. ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.
For operation outside these guidelines, contact ResinTech Technical Support

APPLICATIONS

MBD-10 Throughput Capacity (Gal/cu. ft.)

TDS (ppm as $CaCO_3$) Conductivity (uS/cm)	no CO_2 or SiO_2	5 ppm CO_2 or SiO_2	10 ppm CO_2 or SiO_2
2/5	111,834	31,953	18,639
5/12.5	44,734	22,367	14,911
10/25	22,367	14,911	11,183
20/50	11,183	8,947	7,456
50/125	4,473	4,067	3,728
100/250	2,237	2,130	2,033
200/500	1,118	1,091	1,065
500/1250	447	443	439
1,000/2500	224	223	221

Mixed Bed throughput capacity is based on the stated inlet conductivity of neutral pH waters and run to a 1 uS/cm endpoint. TDS is based on NaCl (2.5uS/cm/ppm as $CaCO_3$). Different salts may have different contributions to TDS. Capacity is based on the anion component and is for virgin resin. Following the initital exhaustion and regeneration subsequent cycles will likely be shorter, depending on how skillfully the resins are separated, regenerated, and remixed.

PORTABLE EXCHANGE DEIONIZATION (PEDI)

ResinTech MBD-10 can be used in PEDI applications to remove bulk TDS from raw waters or to remove trace levels of TDS following reverse osmosis or other desalination processes. MBD-10 can be separated into its components, CG8-H-BL and SBG1-OH, for regeneration, and reused hundreds or thousands of times. The cation component, CG8-H-BL, is black in color and provides optimized color difference from SBG1-OH. This color difference is very helpful to verify resin separation during backwash.

CATRIDGE USE

ResinTech MBD-10 premixed mixed bed is ideal for single use cartridge applications where the longest possible throughput capacity is desired. The ratio of anion to cation resin is optimized to provide balanced exchange of both cations and anions as well as to maximize throughput life.

HIGH TEMPERATURE USE

ResinTech MBD-10 can be used at temperatures up to approximately 180˚F and will still provide reasonable life in single use applications. The anion component is one of the most thermally stable strong base anion resin commercially available and allows operation well above the temperature limits specified for most anion resins.

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