

**Lewatit® MDS TP 208** is a weakly acidic, macroporous cation exchange resin with chelating iminodiacetic acid groups designed for the selective removal of alkaline earth cations. It is a small bead variant of **Lewatit® MonoPlus TP 208** with excellent kinetic performance.

The monodisperse, uniform sized beads of **Lewatit® MDS TP 208** are mechanically and osmotically more stable than ion exchange resin beads with heterodisperse bead size distribution. Additionally they offer superior kinetic behavior which leads to faster uptake of cations and a better utilization of capacity. Due to its modified polymer structure and substitution grade it is particularly suitable for the adsorption of alkaline earth and heavy metal cations from diluted and concentrated brine solutions. Therefore **Lewatit® MDS TP 208** is commonly used for following application:

- fine polishing of brine fed to chloralkali membrane cells, e.g. by removal of  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ; also in the presence of  $\text{Fe}^{3+}$  ions

Smaller bead size requires adaptation of backwash linear velocity and duration, upflow conditioning and suspended solid load control.

**Lewatit® MDS TP 208** offers following advantages compared to the standard **Lewatit® MonoPlus TP 208** and **Lewatit® TP 208**:

- up to 100 % higher operating capacity without requiring additional regenerant chemicals
- lower leakage levels
- improved Strontium and Barium removal efficiency

Aside from its major application in brine purification **Lewatit® MDS TP 208** is used for the removal and recovery of heavy metals out of process, waste and potable water streams. Those metal cations are removed from neutralized waters in following order (decreasing affinity):

Copper > Vanadium ( $\text{VO}^{2+}$ ) > Uranium ( $\text{UO}_2^{2+}$ ) > Lead > Nickel > Zinc > Cadmium > Cobalt > Iron (II) > Beryllium > Manganese >> Calcium > Magnesium > Strontium > Barium >>> Sodium.

The special properties of this product can only be fully utilized if the technology and process used correspond to the current state-of-the-art. Further advice in this matter can be obtained from Lanxess, Business Unit Liquid Purification Technologies.

## Common Description

Delivery form	Na <sup>+</sup>
Functional group	Iminodiacetic acid
Matrix	Styrenic
Structure	Macroporous
Appearance	Beige, opaque

## Specified Data

Uniformity coefficient		max.	1.15
Mean bead size	d50	mm	0.38 (+/- 0.04)
Total capacity (H <sup>+</sup> form)		min. eq/L	2.8

## Typical Physical and Chemical Properties

Bulk density for shipment	(+/- 5%)	g/L	750
Density		approx. g/mL	1.16
Water retention (delivery form)		approx. weight %	59-65
Volume change (Na <sup>+</sup> - H <sup>+</sup> )		max. approx. %	-35
Stability pH range			0-14
Stability temperature range		°C	1-80
Storability temperature range		°C	-20 - +40

## Operation

Operating temperature		max. °C	80
Operating pH range	during exhaustion		2-12
Bed depth for single column		min. mm	1000
Back wash bed expansion per m/h (20°C)		%	12
Specific pressure loss kPa*h/m <sup>2</sup> (15°C)		kPa*h/m <sup>2</sup> (15°C)	3
Max. pressure loss during operation		kPa	250
Specific flow rate		max. BV/h	5-25
Freeboard	during backwash	min. vol. %	100

## Regeneration

HCl regeneration	concentration	approx. wt. %	4-10
HCl regeneration	quantity co-current	min. g/L resin	150
Regeneration contact time		min. minutes	20
Slow rinse at regeneration flow rate		min. BV	5
Fast rinse at service flow rate		min. BV	5

This document contains important information and must be read in its entirety.

## Conditioning

NaOH conditioning	concentration	approx. wt. %	4
NaOH conditioning, di-Na <sup>+</sup>	quantity	min. g/l resin	80-96
Conditioning contact time		min. minutes	20
Slow rinse	at conditioning flow rate	min. BV	5
Fast rinse	at service flow rate	min. BV	5

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## Additional Information & Regulations

### Safety precautions

Strong oxidants, e.g. nitric acid, can cause violent reactions if they come into contact with ion exchange resins.

### Toxicity

The safety data sheet must be observed. It contains additional data on product description, transport, storage, handling, safety and ecology.

### Disposal

In the European Community ion exchange resins have to be disposed, according to the European waste nomenclature which can be accessed on the internet-site of the European Union.

### Storage

It is recommended to store ion exchange resins at temperatures above the freezing point of water under roof in dry conditions without exposure to direct sunlight. If resin should become frozen, it should not be mechanically handled and left to thaw out gradually at ambient temperature. It must be completely thawed before handling or use. No attempt should be made to accelerate the thawing process.

### Packaging

The experience has shown that the packaging stability for reliable resin containment is limited to 24 months under the storage conditions described above. It is therefore recommended to use the product within this time frame; otherwise the packaging condition should be checked regularly.

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