PRODUCT INFORMATION
LEWATIT® MDS TP 260

Lewatit® MDS TP 260 is a weakly acidic, macroporous cation exchange resin with chelating amino methyl phosphonic acid groups for the selective removal of transition heavy metals and alkaline earth cations. The monodisperse beads are mechanically and osmotically superior stable. **Lewatit® MDS TP 260** is produced with significantly smaller beads then the regular **Lewatit® MonoPlus TP 260** and therefore performs with strongly increased kinetics. Depending on the operating conditions 50 % to 100 % higher operating capacity can be realized under equal chemical consumption in regeneration and conditioning. Divalent cations are removed from neutralized waters in the following order:

Uranium (UO_2^{2+}) > Lead > Copper > Zinc > Nickel > Cadmium > Cobalt > Magnesium > Strontium > Barium >>> Sodium.

Adsorption of trivalent cations takes place, but desorption may be difficult. For instance iron (III) can only be desorbed by uneconomically high amounts of specific acid dosage.

Due to the smaller beads **Lewatit® MDS TP 260** beds will deliver higher pressure drops over a resin bed than standard products. This has to be considered in an adequate pump design. Also it has to be considered, that the resin bed is more sensitive against plugging by suspended particles. Therefore a suitable prefiltration of the feed stream (e.g. by use of sandfilters or filter candles) has to be provided.

It is e. g. suitable for use in secondary purification of brine feed to chloralkali membrane cells (traces of alkaline earth ions are removed after their normal precipitation by carbonates in the pH-range 7-11) at absence of iron (III) ions and in case of low demand on Sr and Ba removal.

In brine purification the operating capacity of **Lewatit® MDS TP 260** depends on the pH-value of the brine. At pH 10 it is approx. threefold that achieved at pH 8. At pH 10 and calcium content of 5 ppm, a capacity up to 26 g Ca per litre of **Lewatit® MDS TP 260** (related on the resin in the di-sodium-form) is obtained. At a service flow rate of 20-30 BV/h, the residual calcium values are well below 10 ppb. Greater security can be achieved by operating two units of equal size in series. **Lewatit® MDS TP 260** has to be conditioned with caustic soda solution after every regeneration cycle/before every exhaustion cycle. After the conditioning it is in the di-sodium-form and can be used for the next cycle in the final polishing of chloralkali brine feed.

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^+
Functional group	Aminomethylphosphonic acid
Matrix	Crosslinked polystyrene
Structure	Macroporous
Appearance	Beige, opaque

Specified Data

	metric units	
Uniformity coefficient	max.	1.1
Mean bead size	microns	420 (+/- 50)

Typical Physical and Chemical Properties

		Metric Units	
Bulk density for shipment	(+/- 5 %)	g/L	784
Density		approx. g/ml	1.21
Stability	pH range		0 - 14
Storability	of the product	max. years	2
Storability	temperature range	°C	- 20 - + 40

Recommended Operating Conditions*

		metric units	
OPERATION			
Operating temperature		max. °C	80
Operating pH-range			1 - 12
Bed depth		min. mm	ca. 1000
Specific flow rate	Exhaustion	max. BV/h	5 - 25
REGENERATION			
HCl Regeneration	Concentration	approx. wt. %	4 - 10
HCl Regeneration	Quantity Co-current	min. g/L	150
Contact time		min. minutes	20
Slow rinse (regeneration flow rate)		min. BV	2
Fast rinse (service flow rate)		min. BV	5
Linear velocity	Rinsing	approx. m/h	4
Freeboard	Backwash	vol. %	100 (Na)
CONDITIONING			
Conditioning agent	Type		NaOH
Conditioning agent	Quantity	g/L	80 - 88
Conditioning agent	Concentration	approx. wt. %	4
Linear velocity	Conditioning	approx. m/h	5
Linear velocity	Rinsing	approx. m/h	5

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.

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