PRODUCT INFORMATION
LEWATIT® MonoPlus TP 207

Lewatit® MonoPlus TP 207 is a weakly acidic, macroporous cation exchange resin with chelating iminodiacetate groups for the selective extraction of heavy metal cations from weakly acidic to weakly basic solutions. Divalent cations are removed from neutralized waters in the following order: Copper > Vanadium (VO^{2+}) > Uranium (UO_2^{2+}) > Lead > Nickel > Zinc > Cadmium > Iron(II) > Beryllium > Manganese > Calcium > Magnesium > Strontium > Barium >>> Sodium.
Lewatit® MonoPlus TP 207 is of monodispersed bead size distribution, means beads of uniform size. Its superior kinetic behavior leads to a faster uptake of ions and a better utilization of capacity compared to ion exchange resins with heterodispersed bead size distribution. It is especially suitable for use in the following applications:

- concentration, extraction and recovery of heavy metals from hydrometallurgical solutions, e.g. by Resin-in-Pulp processes
- selective removal of trace heavy metals from effluents of the metal surface finishing industry, even in the presence of high calcium concentrations
- recovery of industrial useful metals from electroplating rinse waters
- removal of metal contaminants from processing baths
- removal of heavy metals from contaminated ground water for the purpose of potable water production and ground water remediation

The selective extraction is achieved even in the presence of the following complexing agents:

- Nitrogen compounds, e.g. ammonia, aliphatic and aromatic amines
- Multivalent carboxylic acids, e.g. citric acid, gluconic acid, glucuronic acid, oxalic acid, tartaric acid
- Phosphates, e.g. tetrasodium diphosphate, sodium polyphosphate

Lewatit® MonoPlus TP 207 does not remove heavy metals from solutions containing EDTA or NTA respectively. Only cadmium is removed from solutions containing cyanides. For the extraction of those heavy metals which follow the uranyl oxide ion in the selectivity sequence as shown above, **Lewatit® MonoPlus TP 207** has to be conditioned with caustic soda solution after every regeneration cycle before every exhaustion cycle. After the conditioning it is partially in a salt-form, e.g. mono-sodium-form.

The special properties of this product can only be fully utilized if the technolgy and process used correspond to the current state-of-the-art and the operating conditions are adapted to the individual requirements. Further advice in this matter can be obtained from Lanxess, Business Unit Ion Exchange Resins.

General Description

Ionic form as shipped	Na+
Functional group	iminodiacetic acid
Matrix	crosslinked polystyrene
Structure	macroporous
Appearance	beige, opaque

Physical and Chemical Properties

		metric units	
Total capacity*	H-Form	min. eq/l	2.0
Uniformity Coefficient*		max.	1.1
Mean bead size*		mm	0.61 (+/- 0.05)
Bulk density	(+/- 5 %)	g/l	720
Density		approx. g/ml	1.1
Water retention		wt. %	55 - 60
Volume change	Na^+ --> H^+	max. vol. %	-25
Stability	at pH-range		0 - 14
Storability	of the product	max. years	2
Storability	temperature range	°C	-20 - 40
Specific pressure drop	(15 °C)	approx. kPa*h/m²	1.1
Specific bed expansion	(20 °C, per m/h)	approx. vol. %	4

* Specification values subjected to continuous monitoring.

Recommended Operating Conditions*

		metric units			
Operating temperature		max. °C		80	
Operating pH-range			1.5	-	9
Bed depth		min. mm		1000	
Pressure drop		max. kPa		250	
Specific velocity	operation	max. BV/h		30	
Linear velocity	backwash (20 °C)	approx. m/h		10	
Bed expansion	backwash	min. %		40	
Freeboard	backwash (extern / intern)	vol. %		80	
Regenerant			H_2SO_4	ou	HCl
Regenerant	level	approx. g/l	200		150
Regenerant	concentration	approx. wt. %	10		7.5
Rinse water requirement		approx. BV		5	
Linear velocity	regeneration	approx. m/h		5	
Linear velocity	rinsing	approx. m/h		5	
Conditioning			Mono-Na	NaOH	Di-Na
Conditioning	level	g/l	40 - 48		80 - 96
Conditioning	concentration	approx. wt. %		4	
Linear velocity	conditioning	approx. m/h		5	
Linear velocity	rinsing	approx. m/h		5	
Rinse water requirement	slow / fast	approx. BV		2	

* The recommended operating conditions refer to the use of the product under normal operating conditions. It is based on tests in pilot plants and data obtained from industrial applications. However, additional data are needed to calculate the resin volumes required for industrial scale ion exchange units. These can be found in our technical data sheets, have to be requested from Lanxess-application-specialists or have to be elaborated in laboratory- and pilot-tests.

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.

LENNTECH
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289