PRODUCT INFORMATION
LEWATIT® TP 207

Lewatit® 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) > Uranium (UO_2) > Lead > Nickel > Zinc > Cadmium > Iron(II) > Beryllium > Manganese > Calcium > Magnesium > Strontium > Barium >>> Sodium.

It is especially suitable for use in the following applications:

- 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,
- concentration, extraction and recovery of heavy metals from hydrometallurgical solutions
- removal of heavy metals from contaminated ground water.

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® 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® 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. Before commissioning a **Lewatit® TP 207** unit, see our Technical Information OC/I 20 343e for laboratory tests.

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 Ion Exchange Resins.

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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	2.2
Uniformity Coefficient*		max.	1.7
Bead size*	> 90 %	mm	0.4 - 1.25
Effective size*		mm	0.55 (+/- 0.05)
Bulk density	(+/- 5 %)	g/l	720
Density		approx. g/ml	1.17
Water retention		wt. %	53 - 58
Volume change	Na^+ --> H^+	max. vol. %	-30
Stability	at pH-range		0 - 14
Storability	of the product	max. years	2
Storability	temperature range	°C	-20 - 40

* Specification values subjected to continuous monitoring.

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Recommended Operating Conditions*

		metric units	
Operating temperature		max. °C	80
Operating pH-range			1.5 - 9
Bed depth		min. mm	1000
Specific pressure drop	(15 °C)	approx. kPa*h/m²	1.1
Pressure drop		max. kPa	250
Linear velocity	operation	max. m/h	40
Linear velocity	backwash (20 °C)	approx. m/h	10
Bed expansion	(20 °C, per m/h)	approx. vol. %	4
Freeboard	backwash (extern / intern)	vol. %	80
Regenerant			HCl H_2SO_4 HNO_3
Co current regeneration	level	approx. g/l	HCl 140 H_2SO_4 200 HNO_3 250
Co current regeneration	concentration	approx. wt. %	HCl 7.5 H_2SO_4 10 HNO_3 12
Linear velocity	regeneration	approx. m/h	5
Linear velocity	rinsing	approx. m/h	5
Conditioning			NaOH Mono -Na Di-Na
Conditioning	level	g/l	40 - 48 80 - 96
Conditioning	concentration	approx. wt. %	4
Linear velocity	conditioning	approx. m/h	5
Linear velocity	regeneration	approx. m/h	5
Linear velocity	rinsing	approx. m/h	5
Rinse water requirement		approx. BV	5

* 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 ion exchange units. These data are to be found in our Technical Information Sheets.

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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.

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