

Lewatit® MonoPlus TP 207 is a weakly acidic, macroporous cation exchange resin with chelating iminodiacetic acid groups designed 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 (decreasing affinity):

Copper > Vanadium (VO^{2+}) > Uranium (UO_2^{2+}) > Lead > Nickel > Zinc > Cadmium > Cobalt > Iron (II) > Beryllium > Manganese >> Calcium > Magnesium > Strontium > Barium >>> Sodium.

The monodisperse, uniform sized beads of **Lewatit® MonoPlus TP 207** 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. Therefore it is suitable for use in the following applications:

- the selective removal of metal contaminants from processing baths
- the concentration, extraction and recovery of heavy metals from hydrometallurgical solutions
- the recovery of useful metals from electroplating rinse waters
- the selective trace removal of heavy metals from industrial metal surface finishing effluents, even in presence of high calcium concentrations
- the selective removal of heavy metals out of contaminated ground and waste water streams for potable water production and ground water remediation
- purification of biopharmaceuticals, nutraceuticals, pharmaceuticals, supplements (no FCN/FDA approval, batch related manufacturer's declaration available, please inform technical sales person in case product is used for this application)

The selective extraction of heavy metal cations by **Lewatit® MonoPlus TP 207** is also achieved in presence of complexing agents such as nitrogen compounds (e.g. ammonia, aliphatic and aromatic amines), multivalent carboxylic acids (e.g. citric, gluconic, tartaric, oxalic acid) and phosphates (e.g. sodium polyphosphate, tetrasodium diphosphate).

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 Corporation.

PRODUCT INFORMATION

LEWATIT® MonoPlus TP 207



Common Description

Delivery form	Na ⁺
Functional group	immodiacetic acid
Matrix	styrenic
Structure	macroporous
Appearance	beige, opaque

Specified Data

Uniformity coefficient		max.	1.1
Mean bead size	d50	mm	0.61 (+/- 0.05)
Total capacity (H ⁺ form)		min. eq/L	2.0

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

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Typical Physical and Chemical Properties

		US Units		Metric Units	
Bulk density for shipment	(+/- 5%)	lb/ft³	45.0	g/L	700
Density				approx. g/mL	1.14
Water retention (delivery form)				approx. weight %	55-60
Volume change (Na ⁺ - H ⁺)				typical approx. %	-25
Stability pH range					0-14
Stability temperature range				°C	1-80
Storability temperature range				°C	-20 - +40

Operation

		US Units		Metric Units	
Operating temperature		max. °F	176	max. °C	80
Operating pH range	during exhaustion				1.5-9
Bed depth for single column		min. inches	39.4	min. mm	1000
Back wash bed expansion per m/h (20°C)				%	4
Specific pressure loss (15°C)				kPa*h/m²	1.1
Max. pressure loss during operation		PSI	36	kPa	250
Specific flow rate		max. gpm/ft³	0.63-3.15	max. BV/h	5-25
Freeboard	during backwash			min. vol. %	80

Regeneration

		US Units		Metric Units	
HCl regeneration	concentration	approx. wt. %		approx. wt. %	4-10
HCl regeneration	quantity co-current	min. lb/ft³	9.4	min. g/L resin	150
H ₂ SO ₄ regeneration	concentration	approx. wt. %		approx. wt. %	10
H ₂ SO ₄ regeneration	quantity co-current	min. lb/ft³	13.1	min. g/L resin	210
HNO ₃ regeneration	concentration	approx. wt. %		approx. wt. %	12
HNO ₃ regeneration	quantity co-current	min. lb/ft³	16	min. g/L resin	250
Regeneration contact time		min. minutes		min. minutes	20
Slow rinse at regeneration flow rate		min. gal/ft³	37.4	min. BV	5
Fast rinse at service flow rate		min. gal/ft³	37.4	min. BV	5

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Conditioning

		Metric Units	
NaOH conditioning	concentration	approx. wt. %	4
NaOH conditioning, di-Na ⁺	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

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE OF PRODUCTS MENTIONED HEREIN IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING ANY PRODUCT, ALWAYS READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION.

Safety precautions

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

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 conditions

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.

Storage time

The recommended storage time for this product is explained in the technical document "Technical guidelines on the storage of Lewatit® ion exchange resins" available for download on our website. Please use the following link for more information: <https://lanxess.com/en/products-and-brands/brands/lewatit/literature>

Packaging

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

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Head Office: 54/18 Bui Quang La, An Hoi Tay Ward, HCMC, Vietnam
Branch Office: 77 Dong Hung Thuan 10B, Dong Hung Thuan Ward, HCMC, Vietnam
Phone: (028) 6258
Email: info@atswatertechnology.com
Website: www.atswatertechnology.com

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LANXESS Corporation
111 RIDC Park West Dr
12275-1112 Pittsburgh-Allegheny
USA

+1-800-678-0020
lewatit@lanxess.com

www.lanxess.com
www.lpt.lanxess.com

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