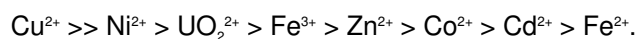


Lewatit® MDS TP 220 is a macroporous weakly basic resin with chelating bis-picolylamine groups attached to a styrene/divinylbenzene co-polymer. Its monodisperse bead size distribution combined with a small mean bead size results in improved adsorption kinetics and an approx. 25% higher copper binding capacity relative to **Lewatit® MonoPlus TP 220**.

Lewatit® MDS TP 220 exhibits a very high osmotic and mechanical stability to meet the requirements of metal processing technologies. It is delivered in the protonated sulfate form and can therefore be used without pretreatment. Due to the smaller bead size a higher pressure drop factor has to be considered when dimensioning the vessel during process design. The increased sensitivity towards suspended solids requires efficient pre-filtration of the feed stream, e.g. by conventional sand filters or filter candles.

At a pH of 2, heavy metal cations are removed from aqueous solutions consistent with the following selectivity series:



Lewatit® MDS TP 220 is especially suitable for the use in the following applications:

- » the purification of cobalt electrolytes (cobalt/nickel separation)
- » the separation of nickel/copper from ferric solutions
- » the recovery of copper from strongly acidic solutions (pH < 2)
- » the purification of chromium(III) baths (removal of heavy metals such as copper and nickel)
- » the adsorption of heavy metals (e.g. copper) from solutions containing strong chelating agents like EDTA

Whilst most metals are removed from the loaded resin with a conventional acid strip, copper can only efficiently be desorbed with ammonia solution.

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 (LPT).

General Description

Ionic form as shipped	H ₂ SO ₄ salt
Functional group	Bis-picolylamine
Matrix	Crosslinked polystyrene
Structure	Macroporous
Appearance	Opaque

Specified Data

	metric units	
Uniformity Coefficient	max.	1.1
Mean bead size	mm	0.37 (+/- 0.03)
Copper capacity	min. g/l	36

Physical and Chemical Properties

		metric units	
Bulk density	(+/- 5 %)	g/l	725
Density		approx. g/ml	1.13
Water retention		wt. %	50 - 58
Volume change	delivered form --> free base	max. vol. %	- 30
Storability	of the product	max. years	2
Storability	temperature range	°C	- 20 - + 40

Recommended Operating Conditions*

			metric units	
OPERATION				
Operating temperature		max. °C		70
Operating pH-range				1 - 14
Bed depth		min. mm		800
Specific pressure drop		approx. kPa*h/m ²		2.8
Pressure drop		max. kPa		250
Specific flow rate	exhaustion	max. BV/h		10 - 30
REGENERATION, CO-CURRENT				
Regenerant	type			H ₂ SO ₄ NH ₄ OH
Regenerant	concentration	approx. wt. %		H ₂ SO ₄ 20 NH ₄ OH 3.5
Linear velocity	backwash (20 °C)	approx. m/h		2 - 3
Linear velocity	rinsing	approx. m/h		5
Rinse water requirement	slow / fast	approx. BV		4
Bed expansion	(20 °C, per m/h)	approx. vol. %		25
Freeboard	backwash	vol. %		100

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.

This information and our technical advice – whether verbal, in writing or by way of trials – are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

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