

For production of ultra pure water.

**Lewatit® UltraPure 1221 MD** is a strongly acidic, highly crosslinked, macroporous cation exchange resin with a uniform particle bead size distribution based on a styrene-divinylbenzene copolymer for the use in WS/VWS systems for the production of ultrapure water.

The monodisperse beads are chemically and osmotically highly stable. The optimized kinetics lead to an increased operating capacity compared to ion exchange resins with heterodisperse bead size distribution

For the production of ultrapure water, leaching of organics from the resin into the treated water is reduced to a level less than **50 ppb**. Hence, the resin is specially recommended for the demineralization of water to ultrapure quality.

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.

## General Description

Ionic form as shipped	Na <sup>+</sup>
Functional group	sulfonic acid
Matrix	crosslinked polystyrene
Structure	macroporous
Appearance	beige-grey, opaque

## Physical and Chemical Properties

		metric units	
Uniformity Coefficient*		max.	1.1
Mean bead size*		mm	0.65 (+/- 0.05)
Bulk density	(+/- 5 %)	g/l	750
Density		approx. g/ml	1.24
Water retention		wt. %	52 - 56
Total capacity*		min. eq/l	1.75
Volume change	Na <sup>+</sup> --> H <sup>+</sup>	max. vol. %	8
Stability	at pH-range		0 - 14
Storability	of the product	max. months	24
Storability	temperature range	°C	-20 - 40
TOC release (a. 80 BV)	as single component	max. ppb	50

\* Specification values subjected to continuous monitoring.

## Recommended Operating Conditions\*

		metric units		
Operating temperature		max. °C	120	
Operating pH-range			0 - 14	
Bed depth		min. mm	800	
Specific pressure drop	(15 °C)	approx. kPa*h/m <sup>2</sup>	0.8	
Pressure drop		max. kPa	300	
Linear velocity	operation	max. m/h	60***	
Linear velocity	backwash (20 °C)	approx. m/h	10 - 12	
Bed expansion	(20 °C, per m/h)	approx. vol. %	4	
Freeboard	backwash (extern / intern)	vol. %	min. 60	
Regenerant			HCl	H <sub>2</sub> SO <sub>4</sub>
Counter current regeneration	level	approx. g/l	50	80
Counter current regeneration	concentration	wt. %	4-6	1.5/4**
Linear velocity	regeneration	approx. m/h	5	10-20
Linear velocity	rinsing	approx. m/h	5	5
Rinse water requirement	slow / fast	approx. BV	2.5	5
Co current regeneration	level	approx. g/l	80-100	130-150
Co current regeneration	concentration	approx. wt. %	6-10	1.5/4**
Linear velocity	regeneration	approx. m/h	5	10-20
Linear velocity	rinsing	approx. m/h	5	5
Rinse water requirement	slow / fast	approx. BV	2.5	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.

\*\* Regeneration progressive

\*\*\* 100m/h for polishing

## Additional Information & Regulations

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

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**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.

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