

For the demineralization of water in the production of ultra pure water

**Lewatit® UltraPure 1211 MD** is a gel type, strongly acidic cation exchange resin (SAC) with a monodispersed bead (uniform particle) size distribution based on a styrene-divinylbenzene copolymer for the use in WS/VWS systems for the production of ultra pure water.

The monodisperse beads (uniformity coefficient: max. 1.1) are chemically and osmotically highly stable. The optimized kinetics lead to an increased operating capacity, and the very low content of fines also results in a low pressure drop compared to ion exchange resins with heterodisperse bead size distribution.

For the production of ultra pure water, leaching of organics from **Lewatit® UltraPure 1211 MD** into the treated water is reduced to a level less than **50 ppb**. Hence, **Lewatit® UltraPure 1211 MD** is specially recommended for the demineralization of water to ultra pure 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 and the operating conditions are adapted to the individual requirements. Further advice in this matter can be obtained from Lanxess, Business Unit Liquid Purification Technologies (LPT)

## General Description

Ionic form as shipped	Na <sup>+</sup>
Functional group	Sulfonic acid
Matrix	Crosslinked polystyrene
Structure	Gel type beads
Appearance	Black - brown

## Specified Data

		metric units	
Uniformity Coefficient		max.	1.1
Mean bead size		mm	0.62 (+/-0.05)
Total capacity		min. eq/l	2.2
Resistivity	ca. 80 BV, as a single component	min. MOhm*cm	4.0
Delta TOC		max. ppb	50

## Physical and Chemical Properties

		metric units	
Bulk density	(+/- 5 %)	g/l	840
Density		approx. g/ml	1.30
Water retention		wt. %	41 - 46
Volume change	Na <sup>+</sup> --> H <sup>+</sup>	max. vol. %	10
Stability	at pH-range		0 - 14
Storability	of the product	max. years	2
Storability	temperature range	°C	-20 - +40

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

### Recommended Operating Conditions\*

		metric units	
OPERATION			
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>	1.0
Pressure drop		max. kPa	200
Linear velocity	operation	max. m/h	60
REGENERATION, COUNTER-CURRENT			
Regenerant	type		HCl H <sub>2</sub> SO <sub>4</sub>
Regenerant	quantity	approx. g/l	HCl 50 H <sub>2</sub> SO <sub>4</sub> 80
Regenerant	concentration	wt. %	HCl 4 - 6 H <sub>2</sub> SO <sub>4</sub> 1.5 - 4**
Linear velocity		approx. m/h	HCl 5 H <sub>2</sub> SO <sub>4</sub> 10 - 20
Rinse water requirement	slow / fast	approx. BV	HCl 2.5 H <sub>2</sub> SO <sub>4</sub> 5
REGENERATION, CO-CURRENT			
Regenerant	type		HCl H <sub>2</sub> SO <sub>4</sub>
Regenerant	quantity	approx. g/l	HCl 100 H <sub>2</sub> SO <sub>4</sub> 150
Regenerant	concentration	approx. wt. %	HCl 6 - 10 H <sub>2</sub> SO <sub>4</sub> 1.5 - 3**
Linear velocity		approx. m/h	HCl 5 H <sub>2</sub> SO <sub>4</sub> 10 - 20
Linear velocity	backwash (20 °C)	approx. m/h	15
Linear velocity	rinsing	approx. m/h	HCl 5 H <sub>2</sub> SO <sub>4</sub> 5
Rinse water requirement	slow / fast	approx. BV	HCl 2.5 H <sub>2</sub> SO <sub>4</sub> 5
Bed expansion	(20 °C, per m/h)	approx. vol. %	4
Freeboard	backwash (extern / intern)	vol. %	min. 60

\* 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

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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.

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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