

**Lewatit® MonoPlus S 108** is a strongly acidic, gel-type cation exchange resin in the Na-form with beads of uniform size (monodisperse) based on a styrene-divinylbenzene copolymer. Due to a special manufacturing process this resin type is extremely resistant to chemical, osmotic and mechanical stress. That leads to very low leachables even under critical conditions like higher temperatures, presence of oxidants (O<sub>2</sub>, Fe-oxides) and external regeneration processes. Even at very short cycle times (one cycle = service + regeneration) the special ion exchange resin matrix leads to long life cycles in demineralization processes. The high total capacity results in high operating capacities with a very low ionic leakage and a very high regenerant utilization.

The extremely high monodispersity [uniformity coefficient: 1.05 (+/- 0.05)] and very low fines content of max. 0.1 % (< 0.4 mm) results in particularly low pressure losses paired with an efficient and cost optimized operation of demineralization plants.

**Lewatit® MonoPlus S 108** is especially suitable for:

- » demineralization of water for industrial steam generation operated with co-current or modern counter-current systems like e.g. Lewatit WS System, Lewatit Liftbed System or Lewatit Rinsebed System
- » polishing using the Lewatit Multistep System or a conventional mixed bed arrangement in combination with the following anion components: **Lewatit® MonoPlus M 500 MB, Lewatit® MonoPlus M 800, Lewatit® MonoPlus M 600, Lewatit® MonoPlus MP 500, Lewatit® MonoPlus MP 800 and Lewatit® MonoPlus MP 600.**

**Lewatit® MonoPlus S 108** adds special features to the resin bed:

- » high flow rates during regeneration and loading
- » high operating capacity at low regenerant consumption
- » low rinse water requirement
- » homogeneous throughput of regenerants, water and solutions, resulting in a homogeneous operating zone
- » virtually linear pressure drop gradient across the entire bed depth, allowing operation with higher bed depths
- » low TOC emission and high resistance to oxidative stress
- » good separation of the components in mixed bed applications.

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	gel type beads
Appearance	black-brown

## Physical and Chemical Properties

	metric units	
Uniformity Coefficient*		1.05 (+/- 0.05)
Mean bead size*	mm	0.62 (+/- 0.05)
Bulk density (+/- 5 %)	g/l	840
Density	approx. g/ml	1.30
Water retention	wt. %	41 - 46
Total capacity*	min. eq/l	2.2
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

\* 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>	1.0		
Pressure drop		max. kPa	200		
Linear velocity	operation	max. m/h	60***		
Linear velocity	backwash (20 °C)	approx. m/h	15		
Bed expansion	(20 °C, per m/h)	approx. vol. %	4		
Freeboard	backwash (extern / intern)	vol. %	60 - 80		
Regenerant			HCl	H <sub>2</sub> SO <sub>4</sub>	NaCl
Counter current regeneration	level	approx. g/l	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	50 80 90	
Counter current regeneration	concentration	wt. %	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	4 1.5** 8	- / - 6 3** 10
Linear velocity	regeneration	approx. m/h	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	5 10 5	- - 20
Linear velocity	rinsing	approx. m/h	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	5 5 5	
Rinse water requirement	slow / fast	approx. BV	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	2 2 2	
Co current regeneration	level	approx. g/l	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	100 150 200	
Co current regeneration	concentration	approx. wt. %	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	6 1.5** 8	- / - 10 3** 10
Linear velocity	regeneration	approx. m/h	HCl H <sub>2</sub> SO <sub>4</sub> NaCl	5 10 5	- - 20

# PRODUCT INFORMATION

## LEWATIT® MonoPlus S 108



Linear velocity	rinsing	approx. m/h	HCl	5
			H <sub>2</sub> SO <sub>4</sub>	5
			NaCl	5
Rinse water requirement	slow / fast	approx. BV	HCl	6
			H <sub>2</sub> SO <sub>4</sub>	6
			NaCl	6
Mixed bed operation				
Bed depth		min. mm	500	
Regenerant	level	approx. g/l	HCl	100
			H <sub>2</sub> SO <sub>4</sub>	150
Regenerant	concentration	approx. wt. %	HCl	4 - 6
			H <sub>2</sub> SO <sub>4</sub>	2 - 8

\* 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

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

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