PRODUCT INFORMATION
LEWATIT® MonoPlus SP 112 H

Lewatit® MonoPlus SP 112 H is a strongly acidic, macroporous cation exchange resin with beads of uniform size (monodisperse) based on a styrene-divinylbenzene copolymer, in fully regenerated form (min. 99% H^+), designed for all demineralization applications. The monodisperse beads have high chemical and osmotic stability. The extremely high monodispersity (uniformity coefficient: max. 1.1) and very low fines content of max. 0.1% (< 0.315 mm) result in particularly low pressure losses compared with standard resins.

Lewatit® MonoPlus SP 112 H 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 **Lewatit® MonoPlus MP 800** or **Lewatit® MonoPlus MP 800 OH**
- condensate polishing in combination with **Lewatit® MonoPlus MP 800** or **Lewatit® MonoPlus MP 800 OH**

Lewatit® MonoPlus SP 112 H adds special features to the resin bed:

- high flow rates during regeneration and loading
- good utilization of the total capacity
- 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
- 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.

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General Description

Ionic form as shipped	H^+
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	0.67 (+/- 0.05)
Bulk density	(+/- 5 %)	g/l	740
Density		approx. g/ml	1.18
Water retention		wt. %	56 - 60
Total capacity*		min. eq/l	1.6
Volume change	H^+ --> Na^+	max. vol. %	- 8
Stability	at pH-range		0 - 14
Storability	of the product	max. months	24
Storability	temperature range	°C	-20 - 40

* Specification values subjected to continuous monitoring.

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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/m²	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. %	4.5
Freeboard	backwash (extern / intern)	vol. %	60
Regenerant			HCl H_2SO_4
Counter current regeneration	level	approx. g/l	HCl 50 H_2SO_4 80
Counter current regeneration	concentration	wt. %	HCl 4 - 6 H_2SO_4 1.5 / 3**
Linear velocity	regeneration	approx. m/h	HCl 5 H_2SO_4 10 - 20
Linear velocity	rinsing	approx. m/h	5
Co current regeneration	level	approx. g/l	HCl 100 H_2SO_4 150
Co current regeneration	concentration	approx. wt. %	HCl 6 - 10 H_2SO_4 1.5 / 3**
Linear velocity	regeneration	approx. m/h	HCl 5 H_2SO_4 10 - 20
Linear velocity	rinsing	approx. m/h	5
Rinse water requirement		approx. BV	2.5
Mixed bed operation			
Bed depth		min. mm	500
Regenerant	level	approx. g/l	HCl 100 H_2SO_4 150
Regenerant	concentration	approx. wt. %	HCl 4 - 8 H_2SO_4 2 - 8

* The recommended operating conditions refer to the use of the product under normal operating conditions. It is based on

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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

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.

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