

Lewatit® MonoPlus S 108 H is a strongly acidic, gelular cation exchange resin with beads of uniform size (monodisperse) based on a styrene-divinylbenzene copolymer, in fully regenerated form (min. 99% H). 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 (O₂, 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 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 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 H adds special features to the resin bed:

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

Application Information: As with any product, use of the products mentioned in this publication in a given application must be tested (including field testing, etc.) by the user in advance to determine suitability.

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, Sybron Chemicals Inc.

General Description

Ionic form as shipped	H ⁺
Functional group	Sulfonic acid
Matrix	Crosslinked polystyrene
Structure	Gel
Appearance	Black-brown

Specified Data

	U.S. Units _{1/5}		Metric Units	
Uniformity Coefficient			max.	1.05 (+/- 0.05)
Mean bead size			mm	0.65 (+/- 0.05)
Total capacity	min. kgr/ft ³	44	min. eq/l	2.0

Physical and Chemical Properties*

	U.S. Units		Metric Units	
Bulk density (+/- 5 %)	lbs/ft ³	49.3	g/l	790
Density			approx. g/ml	1.22
Water retention			wt. %	47 - 53
Volume change H ⁺ --> Na ⁺			max. vol. %	- 10
Stability at pH range				0 - 14
Storability of the product			max. years	2
Storability temperature range F		-4 - +104	°C	-20 - +40

Recommended Operating Conditions*

	U.S. Units		Metric Units	
OPERATION				
Operating temperature	max. F	248	max. °C	120
Operating pH range				0 - 14
Bed depth	min. ft	2.63 (31 inches)	min. mm	800
Specific pressure drop (15 °C)			approx. kPa*h/m ²	1.0
Pressure drop		29 psi	max. kPa	200
Linear velocity operation	max. gpm/ft ²	24	max. m/h	60***
REGENERATION, COUNTER-CURRENT				
Regenerant	type			HCl H ₂ SO ₄ NaCl
Regenerant	quantity	approx. lbs/ft ³	HCl 3.1 / H ₂ SO ₄ 5 / NaCl 5.6	approx. g/l HCl 50 / H ₂ SO ₄ 80 / NaCl 90
Regenerant	concentration		wt. %	HCl 4 - 6 H ₂ SO ₄ 1.5** / 3** NaCl 8 - 10
Linear velocity	approx. gpm/ft ²	HCl 2 H ₂ SO ₄ 4 - 8 NaCl 2	approx. m/h	HCl 5 H ₂ SO ₄ 10 - 20 NaCl 5
Linear velocity	rinsing, slow / fast	approx. gpm/ft ²	approx. m/h	5
Rinse water requirement	rinsing, slow / fast	approx. gals./ft ³	HCl 15 H ₂ SO ₄ 15 NaCl 15	approx. BV HCl 2 H ₂ SO ₄ 2 NaCl 2
REGENERATION, CO-CURRENT				
Regenerant	type			HCl H ₂ SO ₄ NaCl
Regenerant	quantity	approx. lbs/ft ³	HCl 6.2 H ₂ SO ₄ 9.3 NaCl 12.5	approx. g/l HCl 100 H ₂ SO ₄ 150 NaCl 200
Regenerant	concentration		approx. wt. %	HCl 6 - 10 H ₂ SO ₄ 1.5** / 3** NaCl 8 - 10
Linear velocity	approx. gpm/ft ²	HCl 2 H ₂ SO ₄ 4 - 8 NaCl 2	approx. m/h	HCl 5 H ₂ SO ₄ 10 - 20 NaCl 5
Linear velocity	backwash (20 °C)		approx. m/h	15
Linear velocity	rinsing	approx. gpm/ft ²	HCl 2 H ₂ SO ₄ 2 NaCl 2	approx. m/h HCl 5 H ₂ SO ₄ 5 NaCl 5

Rinse water requirement	slow / fast	approx. gals./ft ³	HCl 45 H ₂ SO ₄ 45 NaCl 45	approx. BV	HCl 6 H ₂ SO ₄ 6 NaCl 6
Bed expansion	(20 °C, per m/h)			approx. vol. %	4
Freeboard	backwash (extern / intern)			vol. %	60 - 80
OPERATION, MIXED BED					
Bed depth		min. ft	1.64 ft (19.38 inches)	min. mm	500
REGENERATION, MIXED BED					
Regenerant	type				HCl H ₂ SO ₄
Regenerant	quantity	approx. lbs/ft ³	HCl 6.2 H ₂ SO ₄ 9.3	approx. g/l	HCl 100 H ₂ SO ₄ 150
Regenerant	concentration			approx. wt. %	HCl 4 - 6 H ₂ SO ₄ 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


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Additional Information and Regulations

Safety precautions

Strong oxidants, e.g. nitric acid, can cause violent reactions when in contact with ion exchange resins.

Toxicity

The material safety data sheet must be observed. The MSDS contains additional data on product description, transport, storage, handling, safety and ecology.

Storage

It is recommended to store ion exchange resins at temperatures above the freezing point of water. Ion exchange resin should not be stored in direct sunlight. If the resin should become frozen, the resin should be left to thaw out at ambient temperature before handling. No attempt should be made to accelerate the thawing process.

Disposal

The MSDS contains additional data on product safety and disposal.

Material Safety Data Sheets are available for all Lanxess products. It is recommended that copies of the MSDS be obtained by calling 1-800-678-0020 or 1-800-526-9377.