

PRODUCT INFORMATION

LEWATIT® MonoPlus SM 1000 KR



Lewatit® MonoPlus SM 1000 KR is a ready-to-use mixed bed comprising strongly acidic gel-type cation and strongly basic (type I) gel-type anion exchange resin in fully regenerated form (min. 99% H⁺/min. 95 % OH⁻).

Lewatit® MonoPlus SM 1000 KR is a 1:1 stoichiometric mixture (other mix ratio available on request), premium grade and purified (extremely low content of desorbable chloride ions and no organically bound chlorine!) to meet nuclear industry specifications. Lewatit® nuclear resins (Lewatit® KR) are noted for their outstanding mechanical and chemical stability as well as their high osmotic stability.

Because of their excellent hydrodynamic properties, Lewatit® KR resins allow particularly high flow rates. 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. Used in radioactive water circuits, they provide a number of special tasks and guarantee a water quality that fully complies with the requirements of the nuclear power industry.

Lewatit® MonoPlus SM 1000 KR is particularly suitable for the:

- » polishing in the primary and secondary sections as a mixed bed component
- » decontamination of circuits in nuclear reactor plants
- » treatment of primary coolant e.g. in pressure water reactors
- » purification of steam generator blowdown irrespective of the condition with Levoxin (hydrazine), ethanolamine or morpholine
- » removal of activated cleavage or corrosion products, including mechanical filtration of suspended impurities
- » polishing in the moderator water purification section of Candu reactor stations (gadolinium and nitrate removal)

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 ⁺ /OH ⁻
Functional group	sulfonic acid/quat. amine
Matrix	crosslinked polystyrene
Structure	gel type beads
Appearance	dark brown / translucent

Physical and Chemical Properties

		metric units	
Uniformity coefficient SAC*		max.	1.1
Uniformity coefficient SBA*		max.	1.1
Mean bead size SAC*		mm	0.60 (+/- 0.05)
Mean bead size SBA*		mm	0.65 (+/- 0.05)
Total capacity SAC*	H-Form	min. eq/l	2.1
Total capacity SBA*	OH-Form	min. eq/l	1.2
Bulk density	(+/- 5 %)	g/l	720
Density		approx. g/ml	1.13
Water retention		wt. %	54 - 59
Volume change	H ⁺ /OH ⁻ --> Ca ²⁺ , Mg ²⁺ /Cl ⁻ , SO ₄ ²⁻	max. vol. %	-14
Friability	average	g/bead	SAC / SBA 500 / 700
Friability	> 200 g/bead	min. vol %	95
Storability	of the product	max. months	12
Storability	temperature range	°C	-20 - 40
Ionic conversion	H ⁺	min. mol %	99
Ionic conversion	OH ⁻	min. mol %	95
Ionic conversion	CO ₃ ²⁻	max. mol %	5
Ionic conversion	Cl ⁻	max. mol %	0.1
Ionic conversion	SO ₄ ²⁻	max. mol %	0.1

* Specification values subjected to continuous monitoring.

Trace Elements Analysis

Na	max.	mg / kg dry resin	20	/	20
Ca	max.	mg / kg dry resin	10	/	50
K	max.	mg / kg dry resin	10	/	20
Mg	max.	mg / kg dry resin	10	/	10
Fe	max.	mg / kg dry resin	25	/	50
Cu	max.	mg / kg dry resin	10	/	10
Al	max.	mg / kg dry resin	10	/	40
Co	max.	mg / kg dry resin	5	/	5
Pb	max.	mg / kg dry resin	10	/	10
Hg	max.	mg / kg dry resin	10	/	20
Heavy metals (as Pb)	max.	mg / kg dry resin	10	/	20
SiO ₂	max.	mg / kg dry resin	50	/	100

Recommended Operating Conditions*

	metric units	
Operating temperature	max. °C	60
Operating pH-range		0 - 14
Bed depth	min. mm	800
Specific pressure drop (15 °C)	approx. kPa*h/m ²	1.0
Pressure drop	max. kPa	200

* 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.

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

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