

Lewatit® MonoPlus SP 112 KR is a strongly acidic, premium grade, macroporous cation exchange resin with beads of uniform size (monodisperse) in highly regenerated form (min. 99 % H⁺) and purified (extremely low content of desorbable chloride ions) to meet nuclear industry specifications. Lewatit® nuclear resins (Lewatit® KR) are noted for their outstanding mechanical and chemical stability and their high osmotic stability.

Because of their excellent hydrodynamic behavior, 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 SP 112 KR is particularly suitable for the:

- » removal of cations, including radioactive isotopes, from aqueous solutions (pH control through adsorption of excess ⁷Li)
- » decontamination of circuits in nuclear reactor plants
- » removal of radioactive cations, highly selective for caesium 137
- » treatment of primary coolant e.g. in pressure water reactors
- » purification of steam generator blowdown irrespective of the conditioning with Levoxin (hydrazine), ethanolamine or morpholine
- » removal of activated cleavage or corrosion products, including mechanical filtration of suspended impurities
- » polishing in the primary and secondary sections as a mixed bed component with **Lewatit® MonoPlus M 800 KR** or **Lewatit® MonoPlus MP 800 KR**

Important!

Rinse carefully with demineralized water prior to service or mixing with **Lewatit® Monoplus MP 800 KR** or **Lewatit® Monoplus M 800 KR**.

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	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	0.6 (+/- 0.0) 7 5
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	12
Storability temperature range	°C	-20 - 40
Ionic conversion H ⁺	min. mol %	99

* Specification values subjected to continuous monitoring.

Trace Elements Analysis

Na	max.	mg / kg dry resin	20
Ca	max.	mg / kg dry resin	10
K	max.	mg / kg dry resin	10
Mg	max.	mg / kg dry resin	10
Fe	max.	mg / kg dry resin	25
Cu	max.	mg / kg dry resin	10
Al	max.	mg / kg dry resin	10
Co	max.	mg / kg dry resin	10
Pb	max.	mg / kg dry resin	10
Hg	max.	mg / kg dry resin	< 1
SiO ₂	max.	mg / kg dry resin	50
Chloride	max.	mg / l	10
Heavy metals (as Pb)	max.	mg / kg dry resin	10

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

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 ²	0.8
Pressure drop		max. kPa	300
Linear velocity	operation	max. m/h	5 - 120
Linear velocity	backwash (20 °C)	approx. m/h	10 - 12
Bed expansion	(20 °C, per m/h)	approx. vol. %	4
Freeboard	backwash (extern / intern)	vol. %	80 - 100
Mixed bed operation			
Bed depth		min. mm	600
Regenerant	type		HCl/H ₂ SO ₄
Regenerant	level	approx. g/l	80 - 150
Regenerant	concentration	approx. wt. %	2 - 10
Rinse water requirement	slow / fast	approx. BV	2 / 2

* 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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