

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 resins in fully regenerated form.

Lewatit® MonoPlus SM 1000 KR constitutes of a cation and anion exchange resin mixture in a volume ratio of 1:2. Both components are premium grade and purified 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 and very low fines content result in particularly low pressure losses compared with standard resins.

Designed for operation in radioactive water circuits, they can be used in multiple applications in that specific area.

The achievable water quality complies with the requirements of the nuclear power industry.

Potential applications of **Lewatit® MonoPlus SM 1000 KR**:

- » 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 Liquid Purification Technologies.

Common Description

Type	H ⁺ /OH ⁻
Functional group	Quaternary ammonium Typ1 /sulfonic acid
Matrix	Styrenic
Structure	Gel
Appearance	Black/ Light brown translucent

Specified Data

Uniformity coefficient		max.	1.1
Mean bead size (SAC component)	d50	mm	0.60 (+/-0.05)
Mean bead size (SBA component)	d50	mm	0.64 (+/-0.05)
Total capacity (SAC component H ⁺ form)		min. eq/L	2.1
Total capacity (SBA component OH ⁻ form)		min. eq/L	1.2

Typical Physical and Chemical Properties

Bulk density for shipment	(+/- 5%)	g/L	720
Water retention (delivery form)		approx. weight %	42-63
Volume change (during exhaustion)		max. approx. %	-15
Stability pH range			0-14
Storage time (after delivery)		max. years	1
Storage temperature range		°C	-20 - +40
Friability		average g/bead	600
Friability	>200 g/bead	min. vol %	95
Ionic conversion OH ⁻		min. eq. %	95 (SBA)
Ionic conversion CO ₃ ²⁻		max. eq. %	5 (SBA)
Ionic conversion Cl ⁻		max. eq. %	0.2 (SBA)
Ionic conversion SO ₄ ²⁻		max. eq. %	0.3 (SBA)
Ionic conversion H ⁺		min. eq. %	99.9 (SAC)

Operation

Operating temperature		max. °C	60
Operating pH range	during exhaustion		0-14
Bed depth for single column		min. mm	800
Specific pressure loss kPa*h/m ² (15°C)		kPa*h/m ² (15°C)	1
Max. pressure loss during operation		kPa	200
Specific flow rate		max. BV/h	100

Trace Impurities

Na	max. mg/kg dry resin	50
Fe	max. mg/kg dry resin	30
Cu	max. mg/kg dry resin	5
Al	max. mg/kg dry resin	5
Co	max. mg/kg dry resin	5
Pb	max. mg/kg dry resin	10
Hg	max. mg/kg dry resin	5
SiO ₂	max. mg/kg dry resin	50
Total Chloride	max. mg/kg dry resin	500
SO ₄ ²⁻ as Sulphur	max. mg/kg dry resin	600 (SBA)

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

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.

Packaging

The experience has shown that the packaging stability for reliable resin containment is limited to 24 months under the storage conditions described above. It is therefore recommended to use the product within this time frame; otherwise the packaging condition should be checked regularly.

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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