PRODUCT INFORMATION
LEWATIT® MonoPlus S 108 KR

Lewatit MonoPlus® S 108 KR is a strongly acidic, gel-type cation exchange resin with beads of a uniform size (monodisperse), in highly regenerated form 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.

The high total capacity results in high operation capacities with a very low ionic leakage and a very high regenerant utilization.

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. Used in radioactive water circuits, they provide a number of special tasks and guarantee a water quality that fully complies with the requirement of the nuclear power industry.

Lewatit MonoPlus® S 108 KR is particularly suitable for:

» the removal of cations, including radioactive isotopes, from aqueous solutions (pH control through adsorption of excess ^{7}Li)
» the decontamination of circuits in nuclear reactor plants
» the removal of radioactive cations such as caesium 137 (fuel cooling)
» the treatment of primary coolant e.g. in pressure water reactors
» the purification of steam generator blowdown irrespective of the conditioning with Levoxin (hydrazine), ethanolamine or morpholine
» the removal of activated cleavage or corrosion products, including mechanical filtration of suspended impurities
» the 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® M 800 KR** or **Lewatit MonoPlus® MP 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 Liquid Purification Technologies.

Common Description

Delivery form	H^+
Functional group	Sulfonic acid
Matrix	Styrenic
Structure	Gel
Appearance	Black

Specified Data

Uniformity coefficient		max.	1.1
Mean bead size	d50	mm	0.65 (+-0.05)
Total capacity (delivery form)		min. eq/L	2.0

Typical Physical and Chemical Properties

Bulk density for shipment	(+/- 5%)	g/L	790
Density		approx. g/mL	1.22
Water retention (delivery form)		approx. weight %	47-53
Volume change (H^+ - Na^+)		max. approx. %	-10
Stability pH range			0-14
Storage time (after delivery)		max. years	2
Storage temperature range		°C	-20 - +40
Friability		average g/bead	600
Friability	>200 g/bead	min. vol %	95
Ionic conversion H^+		min. eq. %	99.9

Operation

Operating temperature		max. °C	140
Operating pH range	during exhaustion		2-14
Bed depth for single column		min. mm	800
Bed depth per component in mixed bed		min. mm	500
Back wash bed expansion per m/h (20°C)		%	4.5
Specific pressure loss kPa*h/m^2 (15°C)		kPa*h/m^2 (15°C)	1
Max. pressure loss during operation		kPa	250
Specific flow rate		max. BV/h	100

Regeneration

HCl regeneration	concentration	approx. wt. %	4-6
HCl regeneration	quantity co-current	min. g/L resin	100
HCl regeneration	quantity counter-current	min. g/L resin	55
H_2SO_4 regeneration	concentration	approx. wt. %	1.5-8
H_2SO_4 regeneration	quantity co-current	min. g/L resin	120
H_2SO_4 regeneration	quantity counter-current	min. g/L resin	80
Regeneration contact time		min. minutes	20
Slow rinse at regeneration flow rate		min. BV	2
Fast rinse at service flow rate		min. BV	2

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	20
Organic Chloride	max. mg/kg dry resin	60

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.