PRODUCT INFORMATION
LEWATIT® S 4228

Lewatit® S 4228 is a food grade, macroporous, heterodisperse, medium basic anion exchange resin based on a styrene-divinylbenzene copolymer. It is bead-shaped and has a special bead size distribution for use in the following processes:

- Lewatit® WS system (fluidised bed)
- Lewatit® VWS system (compound fluidised bed)
- Standard co current regenerated system

In its free base form, the **Lewatit® S 4228** is suitable for the removal of acid and simultaneous decolorisation of solutions of organic stubstances, e.g. sugar, gelatine, glycerine, grape must, whey, fruit concentrates, etc.

The macroporous structure and the relation between the weakly and strongly basic groups ensures very good adsorption of organic substances (e. g. colorants) and partial absorbtion of organic acids and mineral acids. The substances are easy to desorb by regeneration with a solution of caustic soda.

If using the **Lewatit® S 4228** to treat potable water and the aqueous solutions listed above, special care should be given to the initial cycles of the new resin. Please refer to the recommended start-up conditions available on request.

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	Free base/Cl^-
Functional group	Tertiary amine/ quaternary ammonium
Matrix	Styrenic
Structure	Macroporous
Appearance	Beige, opaque

Specified Data

Uniformity coefficient		max.	1.6
Range of size for >90 vol% of all beads		mm	0.4-1.25
Effective size	d10	mm	0.50-0.65
Total capacity (delivery form)		min. eq/L	1.6

Typical Physical and Chemical Properties

Bulk density for shipment	(+/- 5%)	g/L	610
Density		approx. g/mL	1.0
Water retention (delivery form)		approx. weight %	53-59
Volume change (free base / Cl^- - Cl^-)		max. approx. %	30
Volume change (during exhaustion)		typical approx. %	19
Stability pH range			0-14
Stability temperature range		°C	1-70
Storage time (after delivery)		max. years	2
Storage temperature range		°C	-20 - +40

Operation

Operating temperature		max. °C	70
Operating pH range	during exhaustion		0-8
Bed depth for single column		min. mm	800
Back wash bed expansion per m/h (20°C)		%	17
Specific pressure loss kPa*h/m^2 (15°C)		kPa*h/m^2 (15°C)	1.1
Max. pressure loss during operation		kPa	250
Specific flow rate		max. BV/h	5
Freeboard	during backwash	min. vol. %	80-100

Regeneration

NaOH regeneration	concentration	approx. wt. %	2-4
NaOH regeneration	quantity co-current	min. g/L resin	80
NaOH regeneration	quantity counter-current	min. g/L resin	60
Regeneration contact time		min. minutes	30
Slow rinse at regeneration flow rate		min. BV	2
Fast rinse at service flow rate		min. BV	4

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 conditions
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.

Storage time
The recommended storage time for this product is explained in the technical document “Technical guidelines on the storage of Lewatit® ion exchange resins” available for download on our website. Please use the following link for more information: https://lanxess.com/en/products-and-brands/brands/lewatit/literature

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.

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