PRODUCT INFORMATION
LEWATIT® MDS TP 208

Lewatit® MDS TP 208 is a weakly acidic, macroporous cation exchange resin with chelating iminodiacetic acid groups designed for the selective removal of alkaline earth cations. It is a small bead variant of **Lewatit® MonoPlus TP 208** with excellent kinetic performance.

The monodisperse, uniform sized beads of **Lewatit® MDS TP 208** are mechanically and osmotically more stable than ion exchange resin beads with heterodisperse bead size distribution. Additionally they offer superior kinetic behavior which leads to faster uptake of cations and a better utilization of capacity. Due to its modified polymer structure and substitution grade it is particular suitable for the adsorption of alkaline earth and heavy metal cations from diluted and concentrated brine solutions. Therefore **Lewatit® MDS TP 208** is commonly used for following application:

- fine polishing of brine fed to chloralkali membrane cells, e.g. by removal of Ca^{2+}, Mg^{2+}, Ba^{2+}, Sr^{2+}; also in the presence of Fe^{3+} ions

Smaller bead size requires adaption of backwash linear velocity and duration, upflow conditioning and suspended solid load control.

Lewatit® MDS TP 208 offers following advantages compared to the standard **Lewatit® MonoPlus TP 208** and **Lewatit® TP 208**:

- up to 100 % higher operating capacity without requiring additional regenerant chemicals
- lower leakage levels
- improved Strontium and Barium removal efficiency

Aside from its major application in brine purification **Lewatit® MDS TP 208** is used for the removal and recovery of heavy metals out of process, waste and potable water streams. Those metal cations are removed from neutralized waters in following order (decreasing affinity):

Copper > Vanadium (VO^{2+}) > Uranium (UO_2^{2+}) > Lead > Nickel > Zinc > Cadmium > Cobalt > Iron (II) > Beryllium > Manganese >> Calcium > Magnesium > Strontium > Barium >>> Sodium.

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 Sybron Inc.

Common Description

Delivery form	Na^+
Functional group	Iminodiacetic acid
Matrix	Styrenic
Structure	Macroporous
Appearance	Beige, opaque

Specified Data

		Metric Units	
Uniformity coefficient		max.	1.15
Mean bead size	d50	mm	0.38 (+/- 0.04)
Total capacity (H^+ form)		min. eq/L	2.8

Typical Physical and Chemical Properties

		Metric Units	
Bulk density for shipment	(+/- 5%)	g/L	750
Density		approx. g/mL	1.16
Water retention (delivery form)		approx. weight %	59-65
Volume change (Na^+ - H^+)		max. approx. %	-35
Stability pH range			0-14
Stability temperature range		°C	1-80
Storability temperature range		°C	-20 - +40

Operation

		Metric Units	
Operating temperature		max. °C	80
Operating pH range	during exhaustion		2-12
Bed depth for single column		min. mm	1000
Back wash bed expansion per m/h (20°C)		%	12
Specific pressure loss (15°C)		kPa*h/m^2	3
Max. pressure loss during operation		kPa	250
Specific flow rate		max. BV/h	5-25
Freeboard	during backwash	min. vol. %	100

Regeneration

		Metric Units	
HCl regeneration	concentration	approx. wt. %	4-10
HCl regeneration	quantity co-current	min. g/L resin	150
Regeneration contact time		min. minutes	20
Slow rinse at regeneration flow rate		min. BV	5
Fast rinse at service flow rate		min. BV	5

Conditioning

		Metric Units	
NaOH conditioning	concentration	approx. wt. %	4
NaOH conditioning, di-Na^+	quantity	min. g/L resin	80-96
Conditioning contact time		min. minutes	20
Slow rinse	at conditioning flow rate	min. BV	5
Fast rinse	at service flow rate	min. BV	5

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.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and application. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change with notice. It is expressly understood and agreed that you assume and hereby expressly release us from liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

Health and Safety Information: Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS Sybron Chemicals, Inc. products mentioned in this publication. For materials mentioned which are not LANXESS Sybron Chemicals, Inc. products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, *e.g., material safety data sheets and product labels*. Consult your LANXESS Sybron Chemicals, Inc. representative or contact the Product Safety and Regulatory Affairs Department at LANXESS Sybron Chemicals, Inc.

Regulatory Compliance Information: Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BfR, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact – for business in the USA - the LANXESS Corporation Regulatory Affairs and Product Safety Department in Pittsburgh, PA, USA or for business outside US the Regulatory Affairs and Product Safety Department of LANXESS Deutschland GmbH in Germany.

Note: The information contained in this publication is current as of the date of edition. Please contact LANXESS Sybron Chemicals Inc. to determine if this publication has been revised.

LANXESS Sybron Chemicals Inc.
200 Birmingham Road
Birmingham, NJ 08011
USA

+1-800-678-0020
lewatit@lanxess.com

www.lanxess.com
www.lpt.lanxess.com