

QUALITY DETOXIFIES.



QUALITY WORKS.

LANXESS
Energizing Chemistry

Efficient Removal of Mercury with **Lewatit® MonoPlus TP 214** Ion Exchange Resin from Industrial Wastewater

Lewatit® MonoPlus TP 214 is a macroporous chelating ion exchange resin, that is highly efficient for the removal of mercury (II) from wastewater. Additionally platinum, rhodium palladium, indium gold, and silver can be recovered by using this chelating resin.

Resin Properties

The monodisperse bead size distribution of our product facilitates the very efficient removal of ions resulting in low leakage in the effluent and high operating capacities. Therefore, customers benefit from savings due to less frequent resin exchange and refill. At the same time, the wastewater discharge limit of 10 ppb can be safely met.

- Total capacity: 1 eq/l
- Macroporous
- Bead size: d50 0.55 mm
- Water content: 54–60%
- Uniformity coefficient: max. 1.1

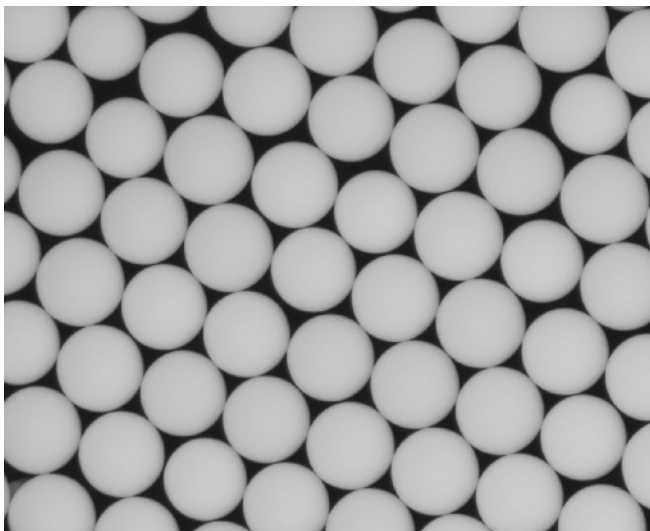
Applications

Mercury is a toxic water contaminant causing harmful damage to the brain, liver, and kidneys and can cause neurological diseases. Contaminations originate from coal-fire power plants and incineration plants. Additionally, mercury is used in China as a catalyst for the production of vinyl chloride, which is the building block of one of the most important industrial polymers polyvinylchloride (PVC). Another contamination source results from the chlor-alkali process, where mercury is used as the cathode in NaCl brine electrolysis. Additional contaminations are caused by dental practice wastes from teeth filling amalgams, fertilizers, landfill leachate, paints, domestic waste inputs, groundwater infiltration, storm water drainage, and historical sources of mercury. Because of its high solubility in water and its persistent bioaccumulation, an efficient liquid purification technology is required to remove mercury from wastewater. In order to face this challenge, LANXESS has developed the ion exchange resin **Lewatit® MonoPlus TP 214**, which enables our customers to generate virtually mercury-free water.

X Lewatit®

Benefits

- Safe mercury removal below the wastewater discharge limit of 20 ppb set up by the Environmental Protection Agency (EPA)
- Up to 80% higher mercury removal capacities compared to competitor resins
- Long resin lifetime provides savings on capital investment costs
- Legal requirements regarding discharge limits are fulfilled in a cost-efficient manner
- High mercury selectivity provides low leakage after operation and convenient disposal of the single-use resin
- The resin does not change the odor of the water
- The resin offers superior kinetic behavior, leading to a faster uptake, a remarkably low leakage, and a better utilization of capacity

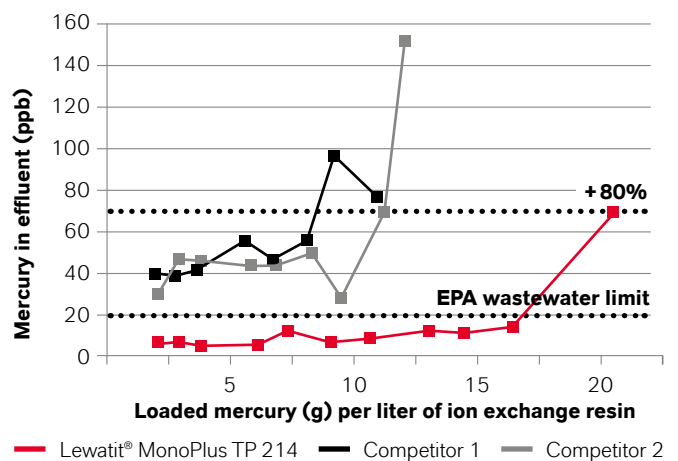


Performance

The wastewater limit of 20 ppb set by the EPA can be achieved by using **Lewatit® MonoPlus TP 214**. Competitor resins exceed the wastewater limit of 20 ppb.

Using a virtual limit of 70 ppb, **Lewatit® MonoPlus TP 214** (red) can be operated 80% longer than the competitor resin (black). As a result, customers need to replace the ion exchange resin less frequently and thereby achieve savings on investment costs.

Figure: Breakthrough curves depicting the mercury concentration determined by inductively coupled plasma spectrometry in the effluent of the ion exchange column depending on the amount of mercury loaded on the resin.



Feed composition

[Hg²⁺] = 400 ppb
[NaCl] = 40 g/L
pH = 9

Specific flow = 10 BV/h

We will be happy to support your business. Please contact us for additional information: visit www.lpt.lanxess.com

LANXESS

Energizing Chemistry

LANXESS Deutschland GmbH
Liquid Purification Technologies
Kennedyplatz 1
50569 Cologne, Germany
Phone: +49 221 8885-0
E-mail: lewatit@lanxess.com

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 products mentioned in this publication. For materials mentioned which are not LANXESS 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, product information and product labels. Consult your LANXESS representative in Germany or contact the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Germany or - for business in the USA - the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

Regulatory Compliance Information: Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BIR, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact your LANXESS Corporation representative, the LANXESS Regulatory Affairs Manager in Pittsburgh, PA or the Health, Safety, Environment and Quality Department (HSEQ) of LANXESS Deutschland GmbH in Germany. 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 applications. 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 without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all 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.

All trademarks are trademarks of the LANXESS Group, unless otherwise specified. Status 07/2023.