

QUALITY PURIFIES.



Lewatit® S 5221 – Food-quality Ion Exchange Resin for Anion Removal

Lewatit® S 5221 is a Food-grade, macroporous, weakly basic anion exchange resin based on a cross-linked polyacrylate. Lewatit® S 5221 combines good physical stability and excellent resistance to mechanical osmotic shocks with exceptionally high total capacity. It is suitable for use in cocurrent and countercurrent systems (e.g., Lewatit® WS system/fluidized bed). Lewatit® S 5221 in the free base form is suitable for removal of, e.g., sulfate ions of organic products such as lactic acid, citric acid, etc.

Applications

- Removal of anions from organic acid, e.g., sulfate removal
- Milk whey demineralization in combination with weak acid cation like Lewatit® S 8528 and strong acid cation such as Lewatit® S 2568
- Gelatin demineralization in combination with strong acid cation like Lewatit® S 1668 or Lewatit® S 2568
- Removal of anions from fruit juice and neutralization with high operating capacity and high stability
- Stevia refining

Benefits

- Combines good physical stability and excellent resistance to mechanical osmotic shock with exceptionally high total capacity
- Offers rapid kinetics for common anions, including larger bulky anions, e.g., sulfate
- Has excellent high osmotic stability against organic acids combined with moderate swelling ~25% for free base Cl⁻ and 50% for lactic acid
- Offers good regeneration behavior and lower rinse water requirements than common resins of this type
- High fouling resistance compared with resins based on cross-linked polystyrene

Performance

Lewatit® S 5221 has been developed specifically to offer superior lifetime in the removal of sulfate and other anions from organic products such as lactic acid and citric acid.

The high operating capacity and therefore life expectancy of **Lewatit® S 5221** for all applications depends on the quality and composition of the water-based food solutions to be treated. We recommend a detailed feed analysis of factors such as ash content, color, viscosity, pH value, and targeted effluent limit as the basis for the selection of the most appropriate demineralization system and resin amount.

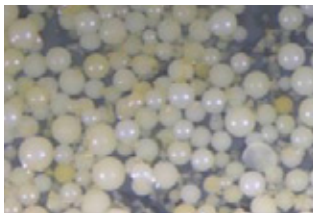


Figure 1: >95% perfect beads after 210 cycles of lactic acid; reference sample (without picture) <30% perfect beads after 20 cycles of lactic acid

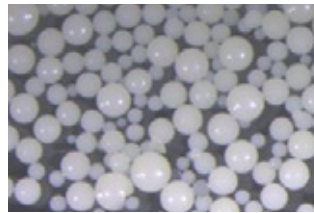


Figure 2: >99% perfect beads after 210 cycles of citric acid; reference sample (without picture) <90% perfect beads after 20 cycles of citric acid

Standard recommendations

For a typical feed conductivity <500 µS a single-pass system with one cation filter/one anion filter and for a feed conductivity >500 µS a double-pass system with two-times one cation filter/one anion filter in serial flow is recommended.

- Operation mode: down-flow or up-flow
- Specific flow rate: 2–4 BV/h
- Regeneration NaOH 4%

Specifications

- **Lewatit® S 5221** is manufactured in accordance with Halal, Kosher, and Food Contact Certification requirements. Certificates are available on request.
- If using **Lewatit® S 5221** to treat aqueous solutions, special care should be given to the initial cycles of new resin. Please refer to the recommended start-up conditions.

Test conditions >200 cycles at 50 °C

Citric acid	10 BV 30% citric acid at 20 BV/h down-flow
Demi water	10 BV at 20 BV/h up-flow
Regenerant	10 BV NaOH 4% at 20 BV/h down-flow
Demi water	10 BV at 20 BV/h up-flow
Lactic acid	10 BV 20% lactic acid at 20 BV/h down-flow
Demi water	10 BV at 20 BV/h up-flow
Regenerant	10 BV NaOH 4% at 20 BV/h down-flow
Demi water	10 BV at 20 BV/h up-flow

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