# PRODUCT INFORMATION
# LEWATIT® TP 308

**Lewatit® MonoPlus TP 308** is a weakly acidic, macroporous cation exchange resin with chelating groups designed for the selective removal of alkaline earth cations from lithium brines.
This ion exchange resin was especially designed for the purification of lithium brines with excellent ion exchange kinetics, high operating capacity and long cycle time. It's modified polymeric structure makes it the perfect candidate for the removal of earth alkaline- and heavy metals of high concentration (>100 mg/L)) from dilute lithium brines of less than 2 g/L.

It is a perfect addition to Lewatit M+/MDS TP 208/260, which remove smaller concentrations (1-100 ppm) of $Ca^{2+}$, $Mg^{2+}$, $Sr^{2+}$, $Ba^{2+}$ from more concentrated lithium brines (>10 g/L Li).

In comparison to other standard resins used for the purification of Lithium brines, **Lewatit® TP 308** outperforms due the following advantages:

» High operating capacity allows long cycle times and low consumption of cost expenditure on regeneration chemicals and process water
» Efficient exchange kinetics leads to low hardness leakage and a pure lithium brine
» Modified polymer structure allows long resin lifetime
» Low pressure drop along the resin bed

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 | Chelating |
| Structure | Macroporous |
| Appearance | yellow, white |

## Specified Data

| | | | |
|---|---|---|---|
| Uniformity coefficient | | max. | 1.8 |
| Range of size for >90 vol% of all beads | | mm | 0.3 - 1.615 |
| Effective size | d10 | mm | 0.4 - 0.6 |
| Total capacity (delivery form) | | min. eq/L | 4.3 |

## Typical Physical and Chemical Properties

| | | | |
|---|---|---|---|
| Bulk density for shipment | (+/- 5%) | g/L | 740 |
| Density | | approx. g/mL | 1.2 |
| Water retention (delivery form) | | approx. weight % | 40 - 50 |
| Volume change ($H^+$ - $Na^+$) | | max. approx. % | 70 |
| Stability pH range | | | 0 - 14 |
| Storage temperature range | | °C | -20 - +40 |

## Operation

| | | | |
|---|---|---|---|
| Operating temperature | | max. °C | 95 |
| Operating pH range | during exhaustion | | 5 - 14 |
| Bed depth for single column | | min. mm | 800 |
| Back wash bed expansion per m/h (20°C) | | % | 4 |
| Specific pressure loss kPa*h/m² (15°C) | | kPa*h/m² (15°C) | 1.3 |
| Max. pressure loss during operation | | kPa | 250 |
| Specific flow rate | | max. BV/h | 40 |
| Freeboard | during backwash | min. vol. % | 100 |

## Regeneration

| | | | |
|---|---|---|---|
| HCl regeneration | concentration | approx. wt. % | 4-10 |
| HCl regeneration | quantity co-current | min. g/L resin | 200 |
| 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

| | | | |
|---|---|---|---|
| NaOH conditioning | concentration | approx. wt. % | 4 |
| NaOH conditioning, di-$Na^+$ | quantity | min. g/l resin | 200 |
| 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 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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