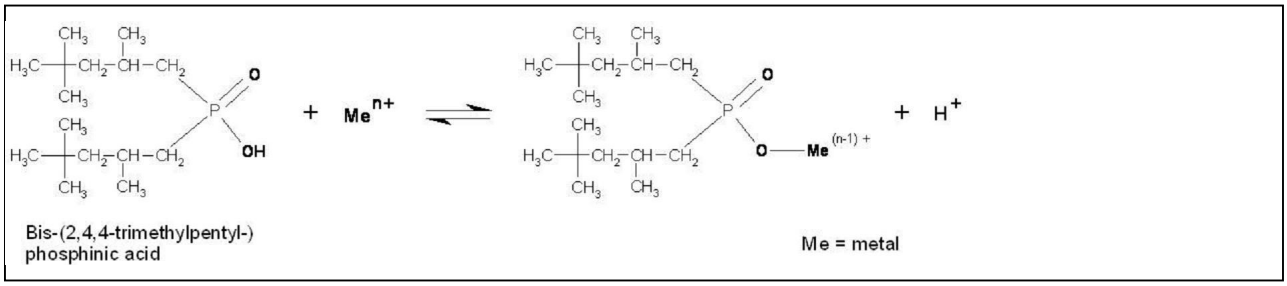
PRODUCT INFORMATION
LEWATIT® TP 272

Lewatit® TP 272 is a crosslinked polystyrene based macroporous resin which contains Bis-(2,4,4-trimethylpentyl-) phosphinic acid. This active ingredient is directly incorporated during the formation of the copolymer, fixed by adsorption and homogeneously distributed within the bead in high concentration. During operation lower rates of extractant loss are obtained relative to impregnated resins.

Generally it can be assumed that ions which can be removed with Bis-(2,4,4-trimethylpentyl-) phosphinic acid will also be adsorbed by **Lewatit® TP 272**. The resin is effective primarily for heavy metals recovery from sulphate and chloride solutions. The extraction chemistry is based on the following mechanism:



Lewatit® TP 272 is designed primarily for the following application:

» Cobalt electrolyte purification (Cobalt extraction from Nickel solution)

Besides its high affinity for Cobalt **Lewatit® TP 272** will also extract other metal cations and can be used for various other applications. The selectivity order can be expected as:

$Fe^{3+} > Zn^{2+} > Al^{3+} > Cu^{2+} > Co^{2+} > Mg^{2+} > Ca^{2+} > Ni^{2+}$

Advantages of Lewatit® TP 272 compared to solvent extraction:

» no organic solvent for the dilution of the liquid extractant required
» no phase separation problems
» simple equipment similar to conventional bead type ion exchange resins
» very low leakage due to sharp plug flow exhaustion along the direction of flow

The active ingredient of **Lewatit® TP 272** is in the form of a free acid. This means that the resin can be used without further pre-treatment. **Exposure to sodium/potassium hydroxide or sodium/potassium carbonate should be avoided because the active ingredient might be washed out.**

Since the resins density is lower than water it tends to float to the water surface. Therefore the resin layer is recommended to be covered by inert material (e.g. **Lewatit® IN 42**) and to be used in columns with strainers at the bottom and at the top. Loading should to be done up flow and regeneration down flow.

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 Ion Exchange Resins.

General Description

Functional group	Bis-(2,4,4-trimethylpentyl -) phosphinic acid
Matrix	crosslinked polystyrene
Structure	macroporous

Physical and Chemical Properties

		metric units	
Zinc capacity*		min. g/l	12.5
Bead size*	> 90 %	mm	0.3 - 1.6
Bulk density	(+/- 5 %)	g/l	530
Density		approx. g/ml	0.97
Water retention		wt. %	28 - 35
Stability	temperature range	°C	-20 - 40
Storability	of the product	max. years	2
Storability	temperature range	°C	-20 - 40

* Specification values subjected to continuous monitoring.

Recommended Operating Conditions*

		metric units	
Operating temperature		max. °C	60
Operating pH-range			1 - 6
Bed depth		min. mm	800
Specific pressure drop	(15 °C)	approx. kPa*h/m²	1.1
Regenerant			Strong Acid**
Regeneration	concentration	approx. wt. %	5 - 25%***
Rinse water requirement		approx. BV	2 - 4

* The recommended operating conditions refer to the use of the product under normal operating conditions
** Common strong acids like sulphuric acid or hydrochloric acids can be used
*** The concentration depends on the metal species adsorb on the resin. Test work is recommended.

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.

This information and our technical advice – whether verbal, in writing or by way of trials – are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

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For more information or a quote, please use the

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