

Lewatit® VP OC 1026 is a crosslinked polystyrene based macroporous resin which contains Di-2-ethylhexylphosphat (D2EHPA). This active ingredient is directly incorporated during the formation of the copolymer and is fixed by adsorption. This gives a resin of very good matrix and - compared with impregnated resins a relatively high concentration of active ingredient; in addition, loss of extractant during operation is minimized (as long as the pH of the process solution as well as rinse water is kept below pH 4). Cations are adsorbed by **Lewatit® VP OC 1026** in the following order: $Ti^{4+} > Fe^{3+} > In^{3+} > Sn^{2+/4+} > Sb^{3+} > Bi^{3+} > V^{2+} > Be^{2+} > Al^{3+} > Zn^{2+} > Pb^{2+} > Cd^{2+} > Ca^{2+} > Mn^{2+} > Cu^{2+} > Fe^{2+} > Co^{2+} > Ni^{2+} > Mg^{2+} > Cr^{3+} >>> Alkali$

Fields of application:

As given by the effectiveness of this extractant, **Lewatit® VP OC 1026** can be used to remove certain metal ions from acidic and neutral solutions.

Generally it can be assumed that ions which can be removed which D2EHPA will presumably also be adsorbed by **Lewatit® VP OC 1026**; primarily heavy metal ions from sulphate or chloride solutions, as a function of pH, e.g.:

- » divalent ions of zinc, uranium (UO_2^{++}), vanadium (VO^{++})
- » trivalent ions of lathanides, indium, iron, aluminium
- » tetravalent ions of actinides, titanium

Advantages of **Lewatit® VP OC 1026** compared to solvent extraction:

- » no organic solvent required
- » no phase separation problems
- » simple equipment similar to conventional bead type ion exchange resins

Important hints for application:

There is a marked distinction in its physical and chemical properties from those of the known ion exchange resins. The product data summarized in the following pages should be carefully observed. It has to be emphasized that: The active ingredient of **Lewatit® VP OC 1026** is in the form of the acid ester. This means that the form supplied can be directly used. **Exposure to sodium hydroxide or sodium carbonate should be avoided since the active ingredient will be displaced from the resin. Also the pH of process solution and rinse water should always be < pH 4.** The resin is floating to the liquid surface. Therefore the column should be equipped with an adequate distribution plate at the column's head and be operated upstream.

Due to the specific method of manufacturing the resin has a relatively high percentage of fine beads. Therefore it is recommended to use inert resin (**Lewatit® IN 42**) to protect the head distributor against plugging. To protect the bottom distributor a gravel layer can be applied.

Backwash can only be carried out in downflow mode by means of an acidic, in minimum 4 % salt containing solution. Backwash water is discharged through a special outl pipe positionned below the ion exchange bed.

The resin can be used without backwashing only in the case that a thorough - pre filtration is carried out. In this case the column is designed with a packed bed, having only 10 % freeboard.

PRODUCT INFORMATION
LEWATIT® VP OC 1026



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.

This document contains important information and must be read in its entirety.

Edition: 2011-10-13
Previous Edition: 2011-05-12

General Description

Functional group	D2EHPA
Matrix	crosslinked polystyrene
Structure	macroporous

Physical and Chemical Properties

		metric units	
Zinc capacity*		min. g/l	13
Bead size*	> 90 %	mm	0.31 - 1.6 5
Bulk density	(+/- 5 %)	g/l	600
Density		approx. g/ml	0.97
Stability	at pH-range		< 4
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	80	
Operating pH-range			1	- 4
Bed depth		min. mm	800	
Specific pressure drop	(15 °C)	approx. kPa*h/m ²	1.1	
Pressure drop		max. kPa	250	
Linear velocity	operation	max. m/h	10	
Freeboard	backwash (extern / intern)	vol. %	10	
Regenerant			HCl	H ₂ SO ₄
Co current regeneration	level	approx. g/l	100	200
Co current regeneration	concentration	approx. wt. %	5	- 15
Linear velocity	regeneration	approx. m/h	5	
Linear velocity	rinsing	approx. m/h	5	
Rinse water requirement	only acidic water	approx. BV	2 - 4	

* The recommended operating conditions refer to the use of the product under normal operating conditions. It is based on tests in pilot plants and data obtained from industrial applications. However, additional data are needed to calculate the resin volumes required for ion exchange units. These data are to be found in our Technical Information Sheets.

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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