

# ARSENIC

Potable Water Treatment



## REMOVAL

**Adsorber for the removal of  
arsenic from potable water**

Lewatit® FO 36

**X Lewatit®**

**LANXESS**  
Energizing Chemistry

# LEWATIT® FO 36 – MAKES POTABLE WATER SAFE TO DRINK

■ Lewatit® FO 36 is designed to reduce the arsenic contamination in potable water supplies, and meet stringent requirements of regional legislation at the same time.

## ■ Selectivity

In comparison to strongly basic anion exchange resins, Lewatit® FO 36 (Figure 1) selectively adsorbs arsenic as both, arsenate (AsV) as well as arsenite (AsIII). Other anions, such as chloride, sulfate, or nitrate, are not adsorbed and do not influence the uptake of arsenic. The capacity of Lewatit® FO 36 for arsenic is significantly higher than that of conventional anion exchange resins. Minor constituents, such as silicate, phosphate, vanadate, and antimonate, are co-adsorbed by Lewatit® FO 36. Their presence decreases the arsenic operating capacity.

## ■ Regeneration

Adsorbed arsenic can be removed from the exhausted adsorber by extraction with alkaline solutions. After conditioning with diluted acid, Lewatit® FO 36 is regenerated and ready for another loading cycle.

## ■ Operating capacity

The arsenic uptake of Lewatit® FO 36 depends on the concentration of arsenic present in the solution. Under field conditions arsenic feed concentrations of 0.01 mg/l up to 0.1 mg/l are expected. The operating capacity under these conditions usually is in a range of 1 to 2.5 g/l.

Figure 2 shows an example of a breakthrough curve of Lewatit® FO 36 under field conditions. After passage of approximately 18,000 bed volumes of feed, outlet concentrations approach 10 ppb and a gradual breakthrough of arsenic begins. The operating capacity at the breakthrough point is 1.8 g of adsorbed arsenic per liter of resin. This result was obtained at LHSV 30 (bed vol/h). At LHSV 10 to 20, 30% higher operating capacities are achievable. Two filters in series, in lead-lag operation, can further increase arsenic capacities up to 50%.

## ■ Certifications

Lewatit® FO 36 is certified under NSF Standard 61. It has passed full tests of effect on water quality of the British WRAS, "Water Regulations Advisory Scheme-Approved Material," and is in compliance with the European Resolution ResAP(2004)3. Total Organic Carbon (TOC) release is according to the AFNOR test T 90-601.

LANXESS staff collaborates with the EU committees in order to create norms for the application of ion exchange resins and to assure a registered and licensed application in potable water treatment.

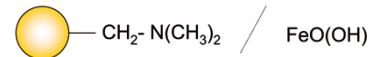
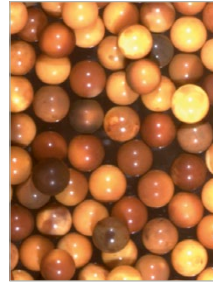
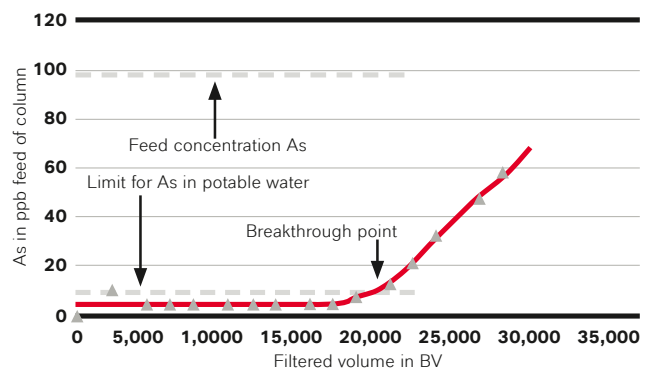


Figure 1: Chemical structure and appearance



Specific velocity: 30 BV/h, feed concentration 100 ppb arsenic V (as As) in neutral tap water 6 ppm silica as SiO<sub>2</sub>, 60 ppb phosphorus, 100 ppb fluoride, 160 ppm bicarbonate, 50 ppm chloride, 13 ppm nitrate, and 43 ppm sulfate.

Figure 2: Lewatit® FO 36 breakthrough curve

## Contact

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