

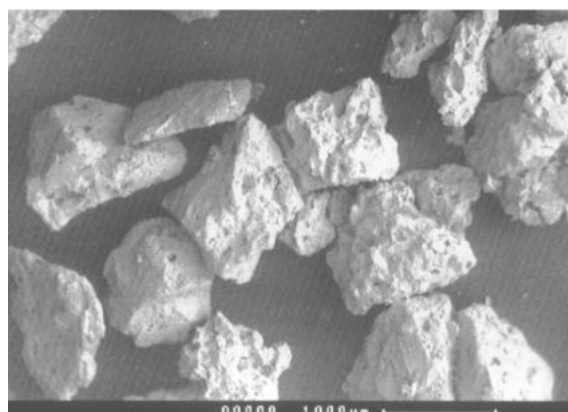
# FerroSorp® Plus/SP

Granular ferric hydroxide for the effective removal of water contaminants

## General

Because of its chemical composition ferric (III) hydroxide is quite effective for binding arsenate, phosphate or sulfide ions in aqueous media. The technical use of this universal adsorbing material has failed until now because of its pasteous consistency. This typical manifestation of ferric hydroxide once made it difficult to handle and prevented its use in simple filtration columns.

Using a patented process, ferric hydroxide can now be produced in a granular form. Various bead diameters can be made by a combination of crushing and sieving procedures. This allows for a great variety of new applications for this interesting chemical called ferric (III) hydroxide.



Picture of FerroSorp Plus granule using an Scanning Electron Microscope

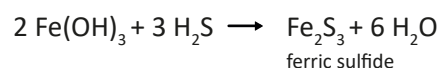
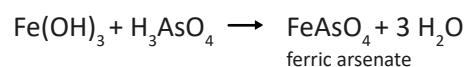
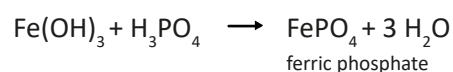
## Operation

In a first step arsenate or phosphate ions in aqueous solutions are adsorptively bound to the surface of **FerroSorp® Plus/SP**. In a subsequent step the chemical conversion into stable ferric arsenate or ferric phosphate takes place.

Sulfide ions formed from hydrogen sulfide in water are removed in a similar way by the precipitation of almost-insoluble ferric sulfide.

The binding mechanism of heavy metal ions is understood as a combination of adsorption followed by fixation inside the crystal lattice of ferric hydroxide. Furthermore there is a relatively unspecific adsorption of organic waste water ingredients possible.

The chemical reactions of phosphate, arsenate and hydrogen sulfide with ferric hydroxide are shown in the following simplified equations:



## Recommendation of application

From the present point of view the use of **FerroSorp® Plus/SP** is suitable in:

- elimination of arsenic from drinking water
- binding of phosphate from rivers and lakes (flood restoration)
- treatment of heavy metal polluted industrial wastewaters
- treatment of contaminated ground water
- filter beds for the separation of phosphate compounds in wet lands
- „reactive barriers“ for the confinement of contamination in depositions
- binding of nutritive substances in aquarium or garden pond treatment



## Experimental water treatment plant

For technical tests using granular ferric hydroxide **FerroSorp® Plus** or **FerroSorp® Plus/SP**, a hypothetical treatment plant is available. It contains up to three solid bed columns that follow a particle filter for the removal of turbidities.

## Advantages at a glance

- High cleaning capacity - low costs
- High absorbing capacity due to high specific surface area
- Simple treatment equipment with low maintenance requirements
- Protecting the environment by reusing natural iron hydroxide from water treatment
- Easy and cost-effective disposal of spent adsorbent

**We gladly advise  
you individually!**

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