# Product Information

# Filtersorb FMH

Order Number: 010.040.002

CWG

Handel mit
Chemikalien und
Wasseraufbereitungszubehör

## Filter Media for Removing Iron, Manganese and Hydrogen Sulfide from drinking water and ground water

FILTERSORB® FMH is a new filter media for removing dissolved iron, mangenese and hydrogen sulfide from drinking water and process water and was developed as an alternative to manganese greensand. FILTERSORB® FMH is a dolomite-based granulated filter media which is coated with manganese dioxide. The excellent properties of the material for removing iron, manganese and hydrogen sulfide are due to the oxidative coating.

FILTERSORB® FMH is suitable for open and closed filters. There are two different treatment processes associated with the use of FILTERSORB® FMH; the intermittent regeneration (IR) and the continuous regeneration (CR).

During the intermittent process iron, manganese and hydrogen sulfide are removed by catalytic oxidation directly on the FILTERSORB® FMH grains. The oxidized precipitates are then filtered out in the filter bed with subsequent removal during backwashing. When the oxidation capacity of the filter bed is exhausted, the filter media can be regenerated with a weak solution of potassium permanganate. The regeneration should take place before total exhaustion and is initiated by backwashing.

For continuous process and for water where high iron and manganese concentration are present a continuous regeneration is necessary. The oxidation capacity is received through a continual feed of a solution of potassium permanganate ($KMnO_4$), chlorine, or a combination of both prior to the FILTERSORB® FMH filter. The oxidized precipitates are filtered out in the filter bed and are removed during backwashing. No additional regeneration is required using this method.

Determining factors for the removal efficiency are pH-value and the amount of organic matter in water. For both, intermittent and continuous process a minimum pH-value of 6.2 is required. During the continuous operation the pH should not exceed 8.8 as there might occur non-filtrable iron colloids. Furthermore the content of organic matter plays a decisive role for removal efficiency. Organic matter forms chemical soluble complexes with ferric and ferrous compounds. Therefore the water should have drinking water quality concerning the amount of organic matter. For water with a hardness below 6° dH (107 ppm $CaCO_3$) we recommend to do preliminary test)

FILTERSORB® FMH also has capacity to remove reliable hydrogen sulfid from water. The removal is effected by catalytical oxidation on the grain.

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**Chemical and Physical Properties of FILTERSORB® FMH**

| | |
|---|---|
| Mesh Size | 20 x 40 |
| Packed Weight | 1.56 tons/ $m^3$ |
| Packaging Unit | 1.5 tons / $m^3$ |
| Number / palet | 25 bags |

**Recommended Operation Procedures for a FILTERSORB® FMH Filter**

| | |
|---|---|
| pH-value | 6.2 – 8.8 |
| Miniumum Bed Depth | 30 Inches (80 cm) |
| Optimal Bed Depth | 48 – 60 Inches (120 – 150 cm) |
| Recommended Service Flow Rate*<br>- Continuous Process<br>- Intermittent Process | <br>6 – 10 gpm/sq. ft (15 – 25 $m^3/m^2/h$)<br>5 – 8 gpm/sq. ft. (12 – 20 $m^3/m^2/h$) |
| Recommended Backwash Rate | 10 – 12 gpm/sq. ft. (25 - 30 m/h) |
| Backwash Time | 10 – 15 minutes |
| Removal Capacity for FILTERSORB® FMH<br>- Iron($Fe^{2+}$) alone<br>- Manganese ($Mn^{2+}$) alone<br>- Hydrogen Sulfide ($H_2S$) alone | <br>85,000 mg Fe/cu. ft. (3000 mg/l)<br>42,500 mg Fe/cu. ft.(1500 mg/l)<br>13,000 mg Fe/cu. ft (500 mg/l) |
| $KMnO_4$ Dosage for Continous Regeneration | Per 1 mg/l $Fe^{2+}$ → 1,0 mg/l $KMnO_4$<br>Per 1 mg/l $Mn^{2+}$ → 2,0 mg/l $KMnO_4$<br>Per1 mg/l $H_2S$ → 5,0 mg/l $KMnO_4$ |
| Regeneration Level for Intermittent Regeneration<br><br>Optimum Regeneration Time | 2,0 – 4,0 g $KMnO_4$ per litre of FILTERSORB® FMH<br>30 – 40 minutes |

*) depending on raw water conditions, especially on iron and manganese concentration

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The information and recommendations given in this product data sheet should not be understood as a recommendation for the use of our products in violation of any patent or as a license to use any patents of the CWG GmbH Germany.
The filter medias listed in this brochure do not remove or kill bacteria. Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. CWG GmbH Germany will not be liable under any circumstance for consequential or incidental damages, including, but not limited to, lost profits

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