



MANGANESE SAND

Manganese Filter Sand is made of natural manganese sand or manganese ore as a raw material. After crushing with multiple screenings and processing into manganese sand filter materials with different contents. The appearance is rough and dark brown/black in colour and has good manganese and iron removal functions. It is the most desirable Iron/Manganese media in the water and drainage industry. The main component of Manganese Sand media is manganese dioxide, with a 40% content which is higher than many other medias offered in the industry.

Using Manganese Sand to treat groundwater uses a simple process with convenient operation, small area, low project cost, long-term stability with a proven service cycle of more than 5 years.

Manganese Sand media is easy to manage and can remove iron, manganese, and arsenic from water without adding any chemical agents. For the purpose of harmful substances, the water quality fully meets the national drinking water standards, and it is a very good filter material for groundwater treatment.



- Good strength
- High pressure and backwash resistance
- Uniform particles
- Sufficient MnO₂ content
- Good filtration performance
- Save qty and cost

Application:

- The ideal grading ratio for water treatment filters
- Removal of iron and manganese to soften water quality
- Apply for drinking water and underground water
- Large specific surface area per unit volume
- Stronger interception capacity
- Oxidation catalytic effect
- Smaller backwash loss rate
- Nitrogen and phosphorus removal

TECHNICAL DATE SHEET

Name	Manganese sand	Appearance	Black granular
Chemical Formula	MnO ₂	Solubility	Insoluble in water
molecular weight	86.94	Melting point	535°C (DEC.)
Packaging	25kg plastic bag		
Specification			
Application	Water treatment removal Fe and Mn		
MnO₂	40%		
SiO₂	20.5%		
Fe	7.1%		
Bulk density	1.8g/cm³		
Size:	0.5 - 1mm		
hydrochloric acid soluble rate	3%		

Recommended process conditions:

Manganese Sand media requires aeration for effective removal of iron and manganese. No chemicals are required to facilitate the oxidation reaction. For iron removal, any iron levels above 20 ppm will require precipitation and settling upstream of the media vessels.

Recommended pH:

A minimum of 6.5 is recommended for iron removal and ideally above 7.5 for effective manganese removal.

Filtration Velocity:

LV 10 – 15m³/m²/hour

Backwash Velocity:

LV 30 -38m³/m²/hour for 900mm bed depth



Freeboard: 40%

At commissioning stage, a significant backwash cycle maybe required for new media which may require up to 8 hours before media is primed and ready for use. Media should also be backwashed until it runs clear.

*In the operation of iron and manganese removal within the filter tank, low iron and manganese ions in the water are first adsorbed by the coated manganese sand filter membrane, [Fe(OH)₃XH₂O] and [Mn(OH)_nXH₂O] formed active filter membrane and participates in the contact oxidation reaction as a new catalyst. The active filter membrane has a tendency of thickening with use, so after one year of use, the manganese content increases by 18.2% and the iron content increases by 4.8%. After two and a half years of use, the manganese content increases by 27.3% and the iron content increases by 14.3%.