

Manganese Zeolite

Manganese Zeolite is used for reducing iron, manganese and hydrogen sulfide from water supplies.



Manganese Zeolite is a granular manganese dioxide filtering media used for reducing iron, manganese and hydrogen sulfide from drinking water. Its active surface coating oxidizes and precipitates soluble iron and manganese. Hydrogen sulfide is oxidized to sulfur. The precipitates are filtered out in the granular bed and removed by backwashing.

Manganese Zeolite consists of a light weight granular core with a coating of manganese dioxide is an example of contact oxidation where the media itself provides the oxidizing potential. This allows for a much broader range of operation than many other iron removal medias. Dissolved oxygen is not essential. The media's light weight reduces backwash water requirements.

ADVANTAGES

- Broad operating range for iron reduction
- Lower pressure loss through the bed with high flock holding capacity
- Effective hydrogen sulfide, iron and manganese reduction.
- Light weight requires lower backwash rates and reduces pumping requirements
- Chlorine can be beneficial in extending filter run times
- Low attrition loss for long bed life
- Lower shipping cost

PHYSICAL PROPERTIES

- Color: Dark brown
- Specific Gravity: 1.4-2
- Effective Size: 0.5-2 mm
- Uniformity Coefficient: 2.0

INTERMITTENT KMnO₄ REGENERATION REQUIREMENTS

- KMnO₄ Dosage 1.5-2.0 oz (by dry weight)/ft³
- Use an injector size that is two sizes larger than one that is sized for a typical softener application
- Draw/slow rinse time greater than 50 minutes
- Down flow rinse (Fast Rinse) 8 minutes minimum
- Rinse until all traces of KMnO₄ are gone

CONDITIONS FOR OPERATION

- Water pH range: 6.2-8.5
- Maximum water temp: 100°F/38°C
- Bed depth: 24-36 in.
- Freeboard: 50% of bed depth (min.)
- Service flow rate: Continuous 2-5 gpm/sq. ft., intermittent flows up to 10 gpm/ft.²
- Backwash flow rate: At 60°F 8-10 gpm/sq. ft. for tanks ≤ 12" diameter, 10-12 gpm/sq. ft. for ≥ 13"
- Backwash expansion rate: 20-40% of bed depth (min.)

METHODS OF REGENERATION

- Intermittent or continuous feed regeneration can be used on systems up to 3 cubic feet.
- Continuous feed regeneration using Cl₂ KMnO₄ or both is required for all systems that are larger than 3 cubic feet.