



MINERS AND MANUFACTURERS OF MANGANESE GREENSAND

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Conditioning and Disinfecting

Manganese Greensand and GreensandPlus

Before Greensand or Greensand Plus is placed in service, it **MUST** be conditioned by regenerating it. Chlorine, sodium permanganate, or potassium permanganate can be used as the regenerant. The media **MUST** be given a backwash and the fines removed from the bed surface before conditioning (See separate media loading instructions). The following procedure is recommended to properly condition the media.

1. Depressurize the vessel by opening the Rinse or Waste Valve and drain any water to below the lowest manway located on the top side of the tank, so that the tank can be safely accessed from the top.
2. Fill the tank with water until the water level is 4 - 5 inches below the Inlet Distributor, or open manway, whichever is lower.
3. Add the appropriate amount of the selected regenerant. (Refer to the chemical dosages that follow.)
4. Mix the solution in the tank using the air wash system. If air wash is not a part of the system provided, mixing can be accomplished with a suspended sump pump, fabricated air lance, or other device. Mix for approximately 5 minutes.
5. Open the Rinse or Drain Valve until the Greensand/GreensandPlus is soaking in the regenerant solution. If the solution level drops below the media bed surface add more water to the top of the bed to prevent the media from going dry.
6. If using chlorine, analyze the effluent for chlorine to ensure that the media is fully submerged in the chlorine solution. If using permanganate, the effluent will be purple in color, indicating the presence of permanganate.
7. If air is part of your filtering system, turn on the air blower and allow the media and solution to intermix for a period of 5-10 minutes.
8. Allow the filter to sit with the regeneration solution in contact with the media for 4 hours, or, if practical, overnight. If no chlorine residual or purple color when using permanganate, appears in the waste water after the regeneration solution has all been drained through the media bed, repeat Steps 2 through 7 using one-half the regenerant originally called for.

9. Replace the manhole cover and slowly refill the tank through the Backwash Inlet. The air should be exhausted through the Air Vent Valve. After the tank is re-pressurized, rinse the filter to waste at 1/3 the design flow rate until the regeneration solution is flushed. Then continue the rinse at the design flow rate until the water passing to waste is clear, iron and manganese free. The rinse should be stopped at this point and the filter placed in service.

NOTE: It is recommended that the conditioning be done before the anthracite is loaded, if any is required. However, the conditioning may be performed after the anthracite is installed. Just be sure that, if the bed is conditioned with anthracite, following conditioning, the bed is backwashed to re-stratify the dual media bed.

It is possible to develop a purple color in the solution when undiluted bleach comes in contact with the media. This will not hinder the regeneration process but might increase the rinse time required.

Chemical Dosages:

Every 100 cubic feet of Greensand or GreensandPlus requires:

20 gallons of 15% bleach, or

50 gallons of 6% bleach, or

11.5 gallons of Carusol 20*, or

6 gallons of Carusol 40*, or

25 pounds of potassium permanganate dissolved in 100 gallons of water.

* Carusol-20 and Carusol-40 are liquid sodium permanganate products produced by Carus Chemical.