



# Magnesium Oxide & Calcium Carbonate

## Magnesium Oxide

Magnesium oxide is a specially processed hard, bead-like magnesia, adapted for use in filters to neutralize acidity by increasing the pH value. By neutralizing the free carbon-dioxide in water, magnesium oxide can correct red water conditions and render them to a non-corrosive condition. Magnesium oxide is used most effectively where pH correction is substantial or high flow conditions are in use. Magnesium oxide, being soluble to acidity, will have to be replenished periodically. Please note - under certain low flow conditions, magnesium oxide may over-correct and create a basic condition.

Magnesium oxide can be effectively combined with calcium carbonate to combine the high flow neutralization properties of magnesium oxide along with the slow reacting low flow properties of calcium carbonate without getting potentially high basic properties due to over correction.

## Advantages

- High degree of activity
- Speed of correction, allowing high flow

## Physical Properties

Color..... greyish white  
 Density ..... 90 lbs./cu. ft.  
 Effective Size ..... 1.27 mm  
 Uniformity Coefficient..... 1.48  
 Active Material ..... 84% - 90%  
 Composition..... MgO 97+%

## Conditioning for Operation

1. Downflow service is satisfactory on waters with a hardness of less than 5 gpg or where it is combined with calcium carbonate at least 50/50. Upflow service is generally recommended with hardness exceeding 5 gpg to prevent "cementing of the mineral bed."
2. A gravel support bed is recommended.
3. pH - 4 to 6.
4. Bed depth - 24" to 30".
5. Backwash frequently to prevent cementing.
6. Backwash bed expansion - 35%.
7. Service rate - 5 to 6 gpm but may be modified to adapt to local conditions.

## Calcium Carbonate (pH Neutralizer)

Calcium carbonate is a crushed and screened white marble material which can neutralize acidic or low pH waters to a neutral non-corrosive affluent, inexpensively. Acidic waters, on contact, slowly dissolve the calcium carbonate media to raise the pH, which effectively neutralizes the potential leaching of copper and other metals found in typical plumbing systems. Periodic backwashing will prevent packing and maintain high service rates. Depending on pH and service flow, the media bed will have to be periodically added to as the dissolved media depletes. As the calcium carbonate neutralizes the water, it will increase hardness and a softener may become necessary after the neutralizing filter.

## Advantages

- High uniformity coefficient for maximum contact for controlled pH correction
- Slower reacting
- Inexpensive

## Physical Properties

Color..... near white  
 Composition..... CaCO<sub>3</sub> - 95% minimum  
 ..... MgCO<sub>3</sub> - 3% maximum  
 Weight..... 100 lbs.  
 Screen ..... #16, #20, #30, #50  
 Percent retained ..... 1%, 15%, 25%, 84%  
 Percent passed ..... --, --, --, 15%

## Conditions of Operation

1. pH - 5 to 6
2. Bed depth - 24" to 30"
3. Backwash rate - 8 to 12 gpm/sq. ft.
4. Backwash bed expansion - 35% of bed depth
5. Service flow rates - 5 to 6 gpm/sq. ft. invariably gives satisfactory results, but may be modified in view of local conditions.

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