

## Filtration Media - Calcite



Calcite media is commonly used to neutralise the pH of acidic waters. pH is a measure of the degree of acidity of water and is measured on a scale of 0-14 pH units, with pH below 7 being acidic, pH 7 being neutral and pH greater than 7 classed as alkaline. Many waters are a few units either side of neutral-drinking water is typically within a range between 6.5 and 9.5. The pH of the water by itself is not usually a significant issue – when low pH water can become a problem is where metal plumbing is installed or contacted. Acidic water can gradually dissolve metals such as copper, brass,

tin, zinc, lead based solder and galvanised iron, leading to leaks and significant concentrations of these metals in the water itself, potentially at levels harmful to health.

Many natural water supplies and those from desalination and reverse osmosis systems will be slightly acidic due to dissolved organic acids, carbon dioxide, poor buffering capacity and low alkalinity. Passing these waters through a correctly designed calcite media filter will raise the pH to neutral and minimise potential corrosion impact.

We have two separate grades of Calcite available:

- Industrial: For industrial and agricultural applications only. Not for Drinking Water.
- Food Grade: For use in drinking and potable water applications. Certified to NSF/ANSI Standard 60 and is suitable for treating drinking waters.

Calcite is a naturally occurring, stable form of mineral calcium carbonate with a self-limiting property of correcting low pH waters only enough to reach a non-corrosive equilibrium. On contacting the calcite media bed, acidic waters slowly dissolve the calcite to raise the pH to neutral. Periodic backwashing prevents bed compaction and maintains high service flow rates. According to feedwater pH, water chemistry and flow rates, the calcite will have to be periodically renewed. Non-standard mixtures are available with differing ratios of Calcium and Magnesium carbonates.

As the calcite media dissolves and neutralises the water, there is an increase in hardness levels and a softener may be required downstream to limit this. For most installations, we use a bypass assembly around the media bed allows adjustment of final pH and conductivity of the water prior

### *Physical Properties*

- Colour: Near white, Hardness: 3.0 (Mohs scale)
- Bulk Density: 90 lbs/cu. Ft (1441kg/m<sup>3</sup>), Specific Gravity: 2.7
- Mesh Size: 16 x 40, Effective Size: 0.4 mm, Uniform Coefficient: 1.5
- Composition: CaCO<sub>3</sub>, 95% min, MgCO<sub>3</sub>, 3.0% max.

### *Conditions for Operation*

- A gravel support bed is recommended
- Water pH range: 5.0-7.0
- Bed depth: 24-30 in, Freeboard: 50% of bed depth (min.)
- Backwash rate: 320-480lpm/m<sup>2</sup>, Backwash Bed Expansion: 35% of bed depth
- Service flow rate: 100-230lpm/ m<sup>2</sup> but may be modified to adapt to local conditions