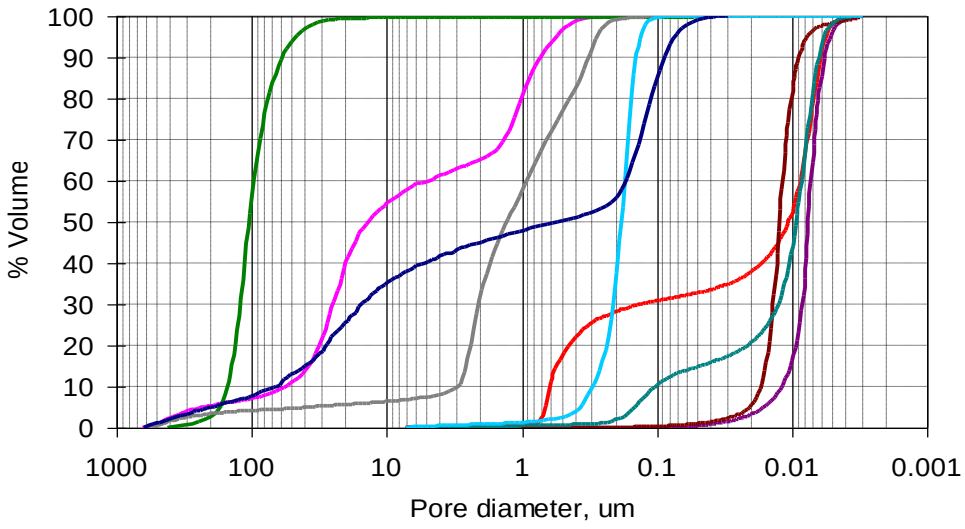
AQUA ION® Ceramic Alkalizing Media

Increasing the pH of drinking water from the nominal 7 to a range of about 9 to 10 has many health benefits attributed to the addition of bicarbonates to our body's health system. A radical new "Alkalizing" media product line has been developed that can raise the pH of water to the 9 - 10 range very quickly, but does not allow the pH to elevate to undesirable levels even after extended contact. The new alkalizing media also is significantly different from previous attempts within the industry to create a totally beneficial media. The newly developed media does not impart any undesired metals or elements into the water, no other media intended for the same purpose can make this statement.

It has been observed that a simple, short-duration contact between water and certain alkaline earth minerals can cause an increase in the pH of water. The alkaline earth minerals referred to generally include the carbonates, oxides and hydroxides of calcium and magnesium. However, these naturally occurring alkaline minerals can have the problem of eluting excessive amounts of Ca or Mg as well as the other alkaline minerals into the water. This would cause an unacceptably high increase in pH and impart an undesirable taste to the water.

Controlling the rate of change and final equilibrium of the pH levels were key to the development of the Alkalizing media. With the Alkalizing media technology, the increase in pH can be controlled to occur very rapidly or very slowly and result in a range of equilibrium pH values from just above neutral to the 11 - 12 range. For most drinking water applications the media will be engineered to produce a pH of 9.0 - 10.0.The rise in the pH is related to the residence time as well as the chemical and physical characteristics of the alkaline earth minerals. In addition to the large health benefit from drinking the higher pH water, the addition of Calcium, Magnesium and Potassium as mineral supplements is an extra benefit.



Pore volume distributions can vary depending on the application

A typical media is produced by forming the appropriate chemical components into the final geometry and then drying the material to remove all physically bound water. The material is then heat treated imparting the right chemical and physical characteristics and forming a strong bonding agent between the particles for physical integrity.

This process is used to control the microstructure and the resulting material can have a pore volume of greater than 50%. The Alkalizing media products are generally comprised of naturally occurring minerals which are chosen to provide the appropriate performance and to contribute to the bonding of the media in ceramic form. In addition to the careful design and control of the chemistry, the microstructure is designed to have the optimum pore volume distribution and surface area. The pore volume can be controlled over a wide range thereby changing the characteristics and performance of the media. Engineering the appropriate pore volume distribution and surface area to control access to the surface of the media are key factors in meeting the target pH increase rates and the equilibrium pH values.

In addition to the chemical and mechanical properties of the media, the geometry must be optimized for the application. The geometry of the media affects several critical factors. Tailoring such properties as the geometric surface area and void fraction, we are able to modify specific performance characteristics such as pressure drop, contact time and mechanical strength.

Shape is critical to the function of the media

The development of a material that can simultaneously increase the pH of water to an acceptable finite level has not been without challenges. Many attempts to develop such a material have led to an undesirable taste causes by too much alkaline earth minerals being imparted to the water as well as the release of unwanted metals.

The AQUA ION® ceramic media developed by Western Water International Inc. has the advantage of being a solid particle which offers a controlled release of the alkaline ions. In addition, the performance of the novel ceramic media can be tailored by changing the chemical and physical characteristics of the material. This ability to tailor the properties of the media helped solve the problem of attaining the desired rate of pH increase while limiting the equilibrium pH and avoiding the possibility of poor taste.

We are pleased that as a result of the extensive development program we can now provide a perfected media to enhance the pH and alkalinity of water from any water treatment device be it a Sport Bottle, a Pour Thru Filter, Counter Top, and Under the Sink units, R/O post treatment as well as pre treatment for Water Ionizing Units.

The uniqueness of this product has allowed for the filing of both domestic and international patents.

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