

## Effects of weak acid cation resin used in combination with activated carbon:

All Drinking Water pitchers including water filter which are available in the market to remove water hardness for example Calcium and Magnesium uses weak Acid Cations. The very low ion-exchange capacity and selectivity of weak acid cations are not ideal in this applications. Also the combination of weak acid cation exchange resins with activated carbon in filters has found widespread use in potable water treatment. It is absolutely true that weak acid cation resins release many extractable materials from the resin into the treated water. These extractable materials (such as uncross linked polymer chains, initiator residues and other contaminants) are very critical to accept in any Drinking water applications. The odor, and high **TOC** (**T**oxic **O**rganic **C**ompound) values including polymer leakage can be tested in any Laboratory in the world.

When adsorbents, such as activated carbon, **TITANSORB**, **FERROLOX** are used in conjunction with any weak acid cation exchange resins to remove organic materials including heavy metals such as Lead and Copper from drinking water, it has been noticed that materials released from the weak acid cation exchange resins become adsorbed into the surface of the activated carbon or any other adsorbents, consequently fouling the surface and pores and collapsing the ability of the carbon and adsorbents to remove organic materials (such as trihalomethanes and chloramines).

The acid regeneration used to convert weak acid cation in to hydrogen-form used any acid like sulfuric acid, hydrochloric acid, phosphoric acid. After the loading the resin, the weak acid cation needs a steam wash with a temperature above 140°C for 1 hour. If the resin is conducted in less than 100°C or in cold water, the weak acid cation will contain undesirable residuals extractable materials that contribute to many contaminants - including antimicrobial growth. All resins tested in Laboratory did not undergo a steam-treatment while in the hydrogen form.

However the conventional Pitcher and Cartridge Filtration has very limited efficiency for removing pharmaceuticals, microorganisms, Pollutants and natural organic matter. The main problem is "resin fouling factor". Therefore in order to deal with these substances, we introduce a new concept **SPECIAL** Fluidized Scale Prevention and Activated Carbon Filtration. See the positive effect of Calcium and Magnesium precipitation. For best healthy water in any application pH is the most important parameter. It should not add any **H<sup>+</sup>** ions or Sodium into the drinking water.

## **SPECIAL** drinking water filtration in 21<sup>st</sup> Century!

	
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