



School of Applied Sciences

MC191 —Master of Environmental Science and Technology

Research Project 2016

**Assessing the descaling potential of modulating
electromagnetic fields for water treatment**

Abstract

Effects of modulating magnetic fields generated by a commercial magnetic-based water treatment device on descaling potential for water treatment were investigated in different conditions of sodium carbonate/ sodium bicarbonate solution concentration, treatment method and treatment time. It was found that magnetic treatment can avoid scales depending on changing the water chemistry, the properties of treated water (conductivity, pH) and the concentration of its impurities.

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“.. In single pass (tap and deionized water) with relatively lower initial concentration of salts, the magnetic-based device has the capacity to transfer [transform] CO_3^{2-} [carbonate] to HCO_3^- [bicarbonate] which is positive for anti-scaling. “

“Single pass is the official use method for Hydrosmart device; and the design for the relatively lower initial concentration of salts is just to fit the concentration of real hard water.”