Swansong for the Softener?

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Ever since the ion exchange softener was invented, the search has gone on for a better alternative solution to the issues created by hard water. Whilst doing a great job in dealing with scale build up and lack of soap lathering, the negatives of cost, the space requirements, the brine servicing, the short life and the detrimental environmental issues have all been drivers to ditch the softener for something better. Many products have been offered to the market but so many of these have been tainted with doubtful provenance, unproven claims and limited endurance such that market acceptance has been limited.

The IAPMO IGC 335-2018 Rapid Scaling Test protocol resolves the issue of performance verification as it is a very accurate, simple and inexpensive test to measure the scaling propensity of a sample of water, with or without treatment. The Aqua-Rex electronic water softener was the first to prove the effectiveness of this independent third-party performance protocol when it was shown to reduce scaling of Las Vegas water heated to 180ºF for 23 hours by 83%. Scaling increases exponentially as the temperature increases, so this would suggest negligible scaling at normal hot water temperatures.

It is evident that prevention of scale in heaters, in plumbing systems and on fixtures such as faucets and shower heads can be achieved without softening the water. The process is much simpler and carries none of the detrimental "baggage" associated with traditional softeners.

Actual softening of the water does become important to improve lathering in laundries as well as in the home where the benefits of soft water for washing hair and skin care are enthusiastically welcomed, especially by women. Until recently the Water Quality Association (WQA) have stated that while Physical Water Conditioners can reduce scale, they can't soften the water because "they didn't remove the calcium". However, evidence provided by Aqua-Rex from multiple laboratories in 1996, have shown that, while total calcium stays the same, calcium ions are reduced in favour of particulate Calcium Carbonate in suspension. The nucleation seeds generated by the device actually stimulate precipitation of the ions.

The WQA have updated their website to state the following:-

"These technologies may provide a measurable reduction in hardness …. by conversion of calcium and magnesium ions to a precipitate form, but do not provide a reduction of total calcium or magnesium content of the treated stream nor are they proven to achieve soft water (less than 1.0 grain per gallon/<17.1 milligrams per litre or parts per million of total hardness) (NB The correct definition of soft water is less than 3 grains which Aqua-Rex has demonstrated.)

If alternate technologies such as Aqua-Rex can both reduce scaling and soften water, then what is the need for traditional softening with all its obvious drawbacks? There are three areas where traditional softeners would be the preferred solution. They include multi tank "Flight" type dishwashers, pre-treatment of RO systems and make up water for steam generation with condensate recovery. Outside of these areas there is no real need for traditional softening.

"Residential Unit"

"Treatment of 6" Boosted Cold Water in The Cosmopolitan of Las Vegas"