



## Swansong for the Softener?

**EVER SINCE THE ION EXCHANGE SOFTENER WAS INVENTED**, Engineers have looked for a better alternative solution for the issues created by hard water. While doing a great job in dealing with scale build up and lack of soap lathering, the negatives of cost, the space needed, 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 that market acceptance has until now been limited.

The IAPMO IGC 335-2018 Rapid Scaling Test protocol resolves the issue of performance verification as it is an accurate, simple and inexpensive test to prove 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 180° F for 23 hours by 83%. Scaling increases exponentially as the temperature increases, so this would suggest negligible scaling at normal hot water temperatures.

Prevention of scale in heaters, in plumbing systems and on fixtures such as faucets and shower heads has traditionally been achieved by water softening, the removal of ions such as calcium and magnesium from the water by substituting other ions, such as Sodium. Aqua-Rex reduces scaling directly by inducing the hard water ions to precipitate on nucleation seeds in the water so the "scale" is now a particulate in suspension. This means that there is no need to soften the water to reduce scaling, 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 commercial laundries. In the home the benefits of soft water for washing hair and skin care are enthusiastically welcomed, especially by women. In 2021 the Water Quality Association (WQA) updated their website to acknowledge that "Scale Reducers" could also reduce hardness ions in the water by causing them to precipitate in



suspension where they effectively become inert and don't react with soaps or detergents. This "update" was a result of Aqua-Rex providing data on softening that showed a reduction of hardness ions from 170 ppm to less than 50 ppm Calcium Carbonate Equivalent (CCE). The US Geological Service defines water as "Soft" if it is less than 60 ppm (CCE). It is significant that their most recent WQA website update provides very sparse information about Physical Water Conditioning technologies. The truth is too much of a burden to be shared it seems.

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? Jonny Seccombe, President of Aqua-Rex LLC, admits to 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 are numerous projects where hard water is present but the cost and inconvenience of softeners is a barrier to their adoption. Aqua-Rex being low cost, having no footprint and requiring no service or maintenance creates no such barriers to being adopted.

# Plumbing Engineer®

## 2021

### MANUFACTURER SPOTLIGHT



**“We Specify it on every project – we can’t think of a good reason not to!”**

OCI Associates in Maitland, FL have been specifying Aqua-Rex since 2016. They are engineers for a wide range of projects including healthcare, education and commercial across the state of Florida. “Most of Florida has hard water, but some parts of the state it’s not so hard,” says Genaine Bailey, “but even where the water is quite soft, in Cape Coral, FL for example, we still specify Aqua-Rex.”

She gives a number of reasons, the most important of which is that it is just as effective as a conventional water softener in terms of scale control, but it doesn’t have all the problems associated with ion exchange softeners. More recently this was confirmed by test results under IAPMO IGC 335, the first US protocol defining de-scaling performance. Aqua-Rex is still the only product of its type with such independent, third party performance verification.

Aqua-Rex is a more reliable technology than conventional softeners which need to be continuously maintained, calibrated and most laboriously, filled up with salt – jobs that often fall off the radar and are forgotten. A saltless softener is a non-functioning softener. Aqua-Rex on the other hand needs no maintenance and is warranted for 20 years!

Typical installed cost for an assisted living home is around \$4,000 and the ongoing cost is just a tiny amount for electricity. Another thing, and very important on many sites, it doesn’t have any footprint. You can hang it from the pipe on which it is installed so it will fit into the smallest of plant rooms.

A huge advantage over conventional salt softeners is you can easily treat both hot and cold water services. This means you get none of the scale you see on shower heads and countertops nor inside mixing valves, a problem when you only soften the hot services. It also means that the cold water is fully potable with none of the health issues or taste of sodium enriched water.

This brings us to the ongoing environmental and cost benefits of using Aqua-Rex. There is less water being wasted on regeneration and less damage to the environment from chlorides in the wastewater. Remember, once chlorides are dumped into the aquifer, they are there forever. There is no natural means of getting rid of them and they are very sensitive about their aquifers in Florida!

Genaine admits that sometimes the owner will value

engineer the Aqua-Rex out of the project. This especially happens when they are going to flip the property. It is a very short sighted policy, but at least Aqua-Rex is an easy retrofit for the new owner. Genaine can relax knowing there can be no comeback in the future for not specifying water treatment in the original plan. Her view is that by specifying Aqua-Rex on every project she can be confident that there will never be any hard water issues in any project of hers, anywhere, ever again.

The point about specifying Aqua-Rex is that it eliminates the “Shall we – Shan’t we” decision about installing water treatment on a project. In very hard water areas it is not a difficult choice to make. In areas with softer water, or subject to changing supply sources, the decision has always been more difficult. Given the low cost, simplicity of install and most importantly, no requirement for servicing – ever – what reason could there be for not specifying it?

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