



## Legionella – Lives, Loves and Feeds on Limescale

**LEGIONELLA LOVES SCALE.** It lives in it, it eats it and it breeds on it. Limescale provides mineral nutrients for Legionella bacteria so it stimulates their growth. It also provides a habitat where it can easily breed and lurk away from the biocides intended to control it. Scale is a great insulator, 400 times less conductive of heat than copper. If pasturisation is being used for control then scale induced temperature gradients can offer refuge to otherwise vulnerable bacteria.

Given the threat that scale offers to Legionella control it is surprising there is not a lot of emphasis on minimising scale growth in ASPE's Legionella Design Guide and none at all on how to get rid of it. Softening hard water gets an occasional mention but not the serious issue which is that conventional softening can actually make the situation worse.

**“Softeners can increase the risk for Legionella colonization in hot and cold-water systems by consuming disinfectant residual and providing a media for bacteria growth. There are several factors to consider with respect to softeners and risk potential.**

**– [legionellae.org/water-softeners-and-legionnaires-disease/](https://legionellae.org/water-softeners-and-legionnaires-disease/)”**

There is an alternative to conventional softening using Aqua-Rex, the “No Salt Softener”, that will stop scaling AND will get rid of existing scale from plumbing systems which is something a conventional softener can't do. Aqua-Rex can do this quickly and inexpensively without disruption to normal working.



These three pictures show a heavily scaled valve from a luxury hotel in Las Vegas. The same valve just eleven weeks later and another valve from the same hotel three years after Aqua-Rex was installed. The contrast between the “habitat friendly” scaled valve and the “no place to hide” cleaned valve could not be greater.

The result is rapid, just taking a few weeks to happen after the appropriate Aqua-Rex is installed. There is the risk during this process that the abundant scale released from the plumbing could clog heaters, shower heads and aerators and a program to mitigate this using strainers and routine maintenance needs to be set up.

There is also a risk of a spike in Legionella bacteria as it is released with the scale that has been its habitat up to now. Additional monitoring and extra biocidal dosing may be required, but this will only be needed over a few weeks, maybe a couple or three months, before the system is clean and the spike is overcome.

The best way to avoid these issues resulting from retrofitting is to make sure scale control is installed at the time of construction. Installing a conventional water softener has always been a “shall we – shan't we” decision, balancing the cost, space, access and maintenance issues against the benefits. With Aqua-Rex none of the drawbacks of conventional softening are present. It is low cost with a zero footprint and needs absolutely no maintenance or servicing so can be regarded as 100% reliable.

Details about Aqua-Rex can be found in the Technical Library of the website and specific advice is only a phone call away.

**[www.aqua-rex.com](http://www.aqua-rex.com) | 702-304-2170**