INSTALLERS: HOW DO YOU TREAT YOUR CUSTOMERS?

If you're a plumber or heating engineer working in a hard water area, you probably know how important an effective hard water treatment device can be. The right product can help prevent limescale build-up, protect heaters, reduce energy bills, and ensure compliance with the requirements of Part L. But with so many different options available, which should you recommend to your customers?

Would a traditional softener, which replaces hardness minerals with sodium, provide a practical solution or should you recommend a chemical fee alternative? Physical water conditioners are generally accepted as low cost, easy to install and, in some cases, maintenance free alternatives, but which provides the best customer experience?

Lifescience Products are widely regarded as experts in this field of technology. They provide technical support and accredited training seminars to many of the UK's leading specifiers, engineers, installers and local authorities looking for advice on this very topic.

To help provide the best advice, we first need to address the problem – Hard Water.



Hard Water

Hard water contains high levels of dissolved calcium minerals which are picked up by rainwater as it percolates through limestone bedrock. These hardness minerals can precipitate back out of solution, as encrusted limescale, when the water is heated or a pressure drop occurs. It's these deposits that cause water heaters, valves and appliances to fail, that reduce energy efficiency and provide a hiding place for bacteria.


Crystals of calcium carbonate seen through an electron miscroscope.

Salt Softeners

Traditional ion exchange softeners deal with the problem by replacing hardness minerals with sodium. This prevents the precipitation of limescale, but it isn't always a practical solution. Salt softeners tend to be expensive to buy, they need regular servicing and require the user to supply salt to keep them operable. A separate potable water supply may also be required to provide safe drinking water to outlets.

Physical Water Conditioners

Physical water conditioners are unlike base exchange softeners in that they don't need to remove the calcium from hard water to prevent limescale encrustation. They work by encouraging dissolved calcium to precipitate in suspension rather than encrusting surfaces. This means hardness minerals continue to be brought out of solution during a 'scaling event' but form onto seeds in the water, thus mitigating their effect on water heaters, valves, appliances and pipes.

Electrolytic

Many release zinc to act as the seed on to which limescale can form. The most effective of these electrolytic devices tend to use galvanic corrosion to break down a sacrificial zinc anode over time. They are often the least expensive and easiest to install of the inline water conditioners and can be very effective.

However, their lifespan could be limited to just a few years due to passivity as a result of scaling or the anode becoming exhausted. In the USA this has been demonstrated by a manufacturer now recommending their units are routinely cleaned with acids to reduce the effects of passivity.

Continued...

Photo: Stefandiller, https://commons.wikimedia.org/w/index.php?curid=3483872

Continued...

Electronic and Electro-Magnetic

For those looking for longer term protection, particularly plumbing and heating installers wanting to reduce repeat call-outs, electronic and electro-magnetic water conditioners may be a more sustainable option. Most are maintenance free and design life can exceed 25 years. A few will even descale existing plumbing installations!

By and large they work by encouraging limescale to form in suspension as part of a two-stage process whereby a signal is transmitted into water to create a seed on to which scale is forced to precipitate during the scaling event. Most only treat water locally, relying on a temporary memory effect to prevent scale encrustation downstream of the device, and whilst some can treat static water the effect is often very short lived.

Water-King

Water-King utilizes ultra-high radio wave technology to create pre-nucleation clusters that act like seeds. These waves are continuously transmitted through the water, both upstream and downstream, irrespective of flow. Providing there is continuity of signal they'll provide constant treatment to all of the water all of the time, without any reliance on temporary memory effect.

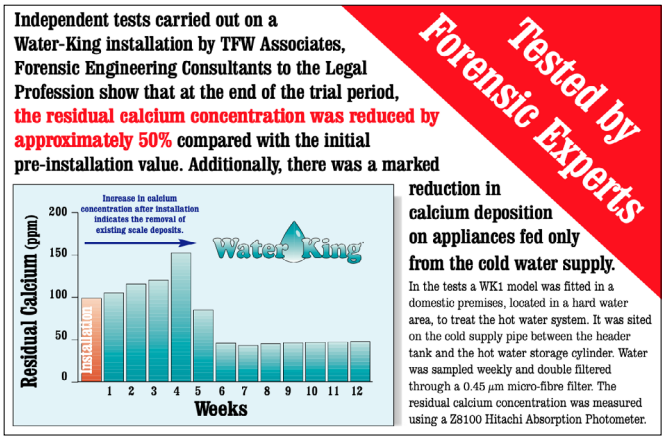


Water-King utilizes radio wave technology to provide continuous treatment irrespective of flow.

This unique characteristic has allowed Water-King to protect sites where other technologies commonly fail, particularly schools, universities, care homes and large multi-occupancy buildings which experience periods of low or intermittent usage.

Independent Testing and Performance Verification

Of the many technologies available in the UK, some are considerably more effective and reliable than others. Whilst a few have been the subject of independent laboratory analysis, Water-King remains the only product of its kind proven by independent laboratory tests to partially soften hot water.



Water-King has been Independently Tested by Forensic Experts.

The tests, which were commissioned by the ASA and undertaken by TFW Associates, Forensic Engineering Consultants to the Legal Profession, showed a reduction in the residual calcium concentration of the hot water by approximately 50%. There was also a marked reduction in calcium deposition on appliances fed from the cold-water supply.

Water-King has also been independently performance verified using the IGC-335 test protocol, where the technology was shown to reduce scaling by 83% in water samples heated to 180F.

Conclusions

Whilst all of the products mentioned in this article can provide effective limescale reduction, only Water-King has been proven by independent laboratory tests to partially soften hot water. This coupled with its maintenance free 25-year design life and third party performance verification make it an ideal 'fit and forget' alternative to base exchange softening.

Want To Know More?

If you'd like to know more about hard water treatment, please contact us to discuss further training.

Lifescience Products offer CIBSE and CIPHE accredited CPD training seminars on non-chemical hard water treatments and UV Disinfection. The seminars fit into a lunch hour and they're frequently delivered to engineers, installers and local authorities looking for in person technical support.

For those too busy to attend in person, we can also offer virtual presentations or remote learning via the Lifescience Academy. Our Water-King E-Learning Module is also featured on the CIPHE training portal, which is free to access for all CIPHE members.

Lifescience Academy

CIPHEpd