

Understanding Water Treatment Systems

Water is commonly classified as hard or soft depending on the type and amount of naturally occurring and harmless minerals and salts dissolved in it. The most common ones are calcium and magnesium. When water has a relative high content of dissolved minerals it is described as hard, a low dissolved content and it is described as soft.

When mains water is heated it causes the dissolved salts to attach themselves to any metal they come into contact with, forming a creamy-coloured hard crust which builds up and is called limescale or just scale. It's a familiar sight on the heating elements in electric kettles. In areas of the country where the water is naturally soft, the build-up will take a long time to be noticed. In hard water areas the build-up can be relatively quick.

The danger of limescale build-up is where it occurs in the internal pipework or water heating elements of kitchen equipment which uses running mains water and heating elements, such as dishwashers, combi-ovens, coffee machines and vending machines.

Where scale build-up occurs in internal pipework it restricts the flow of water causing serious and expensive damage to equipment. Where scale build-up occurs on heating elements it will insulate the elements forcing them to use far more energy than needed to heat the water, leading to early burn-out.

The fact that a catering business may be in an area of the UK officially classified as a soft-water region is not an excuse for not fitting water treatment, because there is still a risk. There are dissolved salts in all water and scale build-up will occur eventually. While the normal water supply is regarded as soft water, should the water be drawn from deep boreholes in times of drought, its hardness level will change.

Also, water companies move water around from region to region through underground pipework, which will also change the hardness level. Apart from softening, water treatment systems will remove contaminants, which can affect the taste of water in ice, mains water for the table and hot beverages.

There are several different water treatment systems. A hotel may choose to have a system which treats all water coming in through a central treatment point. This will give purified and soft water not just for the kitchen, but for all other parts of the hotel. A system may be installed to serve all kitchen equipment or individual items of equipment can be fitted with their own water filter.

Water softeners – These add a slight amount of salt to the water, which has the effect of greatly reducing the amount of dissolved

limescale which will be released when the water is heated. Suitable where the water is not directly for consumption, such as in dishwashing or laundry. Not suitable where the water is to be consumed because of the slight increase in saltiness. Can lead to streaking of glasses in glasswashers and over time the salt can corrode welds on internal pipework. The least expensive form of water treatment.

Carbon Filters – These will remove chlorine and discoloration, but not hardness. So if the business is located in a soft water area, but there is a wish to make the water taste better for drinking or use in draught soft drinks dispensers, carbon filters are an option.

De-alkalising units – Sometimes called calcium treatment units because they remove the hardness. The water is passed through. Suitable for combi-ovens, steamers, icemakers beverage machines and vending machines.

De-mineralisation – This removes almost all the dissolved minerals and hardness in the water and an option where the water is very hard. Useful for glasswashers where there has been a history of smearing on glasses due to high levels of dissolved salts in the washing water.

Reverse Osmosis - While this sounds like high science, it is in principle a fairly simple water treatment system. The water is forced under pressure through a very thin filtering membrane, like a sieve, which removes not just the harmful limescale but many other trace elements, giving water, which is very pure, but total removal of trace elements may change the flavour of beverages. For use in delivering very pure water or where the water is exceptionally hard.

How to choose the right water treatment system

Talk to the experts.

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Note to editors:

Key items of prime cooking equipment have their own section in this guide - this information guide takes in prime cooking equipment not covered elsewhere.

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