

THE DIFFERENCES BETWEEN SALT BASED AND SALT FREE WATER TREATMENTS

If you live in a hard water area, (defined as total hardness greater than 200mg/l), to comply with Part L of Schedule I of the Building Regulations, the feed water to water heaters and boilers needs to be treated to prevent lime scale formation when the primary space heating or hot water appliance is next replaced. New houses in hard water areas should already have some provision for water treatment. Details can be found in the Domestic Heating Compliance Guide published May 2006.

There is no one technology which solves every water problem. Each solution that has been developed has advantages and disadvantages and these factors need to be considered before making any commitment. Remember a salt free system conditions the hardness in water achieving most of the properties gained in salt softened water, however the hardness minerals altered in state are still present and cannot be measured for hardness reduction by traditional testing

By establishing the most important needs for your home one can then decide which route to take regarding water treatment. Unfortunately not all expectations can be met so a compromise must be achieved by priority sorting.

Typical needs clients often ask about are listed below.

Ease of installation and space required

SALT- Salt systems require extensive alteration to the plumbing, This includes a separate untreated drinking water supply, a drain feed for the brine during the regeneration process, an electrical supply for the metering system and often a large installation space for the treatment tanks

SALT FREE Salt free systems require simple plumbing with just some consideration on a run of plastic or flexible pipe in the immediate proximity of the filter and a service bypass loop. No electric, no drain or separate drinking water feed is required as the water is drinkable. Space can be compact and the smaller household system can fit in a standard 60cm kitchen cabinet.

Cleanliness of bathroom fixtures

SALT- A salt based system will give the better clean appearance on bathroom fixtures and shower screens

SALT FREE – A salt free system will leave powdery residues where water can evaporate on surfaces. Unlike untreated water deposits this is easily removed. Treatments can be applied to freshly cleaned surfaces which minimise the amount of water droplets which could cling to the surfaces long enough to evaporate.

Prevention of scale in pipe work

SALT- Traditional softeners have been used in preventing scale in pipes for many years, with good results on pipe-work protection

SALT FREE- Salt free technology is very effective on preventing pipe-work from fouling and can help degrade existing scale in the plumbing over a period of a couple of months. Please note this scale degradation might appear as increased spotting on bathroom surfaces over the first couple of months

Protection of appliances and boilers

SALT. Salt softeners can corrode steel and aluminium heat exchangers in some boilers and it is essential to check with the boiler manufacturer before fitting one. British Standard BS 7593:2006 Code of practice for treatment of water in domestic hot water central heating systems has recently been updated and now allows new systems, including those with boilers with aluminum heat-exchangers, to be filled with softened water provided that a corrosion inhibitor specifically formulated for the purpose is added and properly maintained.

SALT FREE- Salt free systems will keep appliances and boilers clean and free from the harm of scale. As there is no salt added anywhere in the treatment cycle there is no corrosion threat to aluminium components within these appliances

Reduction in energy costs through appliance efficiency

SALT and **SALT FREE** - Scaling causes progressive lowering of the boiler efficiency by heat retardation, acting as an insulator. More energy is required to heat the same volume of water because of scale builds up on heating elements, also blockages on heat exchangers reduce the water flow that can pass through causing temperature spikes within the system and premature shut off of thermostatic valves within appliances, most noticeable on electric showers where it keeps going extremely hot and then cold). Scale built-up can cause the tubes to overheat and rupture. Both salt and salt free systems will protect from scale formation and with salt free systems existing scale will be removed within the first few months of operation from appliances improving efficiency and reducing energy costs.

Healthy drinking water

SALT- Salt systems exchange the calcium and magnesium IONS (scale) with sodium in its treatment process and the water they produce can be unhealthy to drink long term. Salt has been linked to High Blood Pressure; Cardiovascular Disease (stroke, heart disease and heart failure); Kidney Disease & Kidney Stones; Obesity; Osteoporosis; Stomach Cancer; Water retention/bloating, Salt is also thought to exacerbate the symptoms of Diabetes; Meniere's Disease; Asthma; and Alzheimer's. Although doses of salt are low in water treatment caution must be considered if you're on a very low-sodium diet, one common solution regarding drinking water is to have a dedicated untreated cold water supply for drinking and cooking. However the treatment of other mineral particulates, chlorine, and organic contaminants are not addressed without further filtration devices being fitted to the drinking water supply.

SALT FREE- Our filters do not add any sodium salt in the treatment process and the water is produced to a high drinking quality removing with the incorporation of our unique filtration high levels of contaminants such as Arsenic, Chlorine, E coli, Hormones, Herbicides, Pesticides, THMs, ECBs, TMEs, Trihalomethanes, Pseudomonas, Solvents incl. PCBs, PAHs, Trace Heavy Metals, Lead, Mercury, Iron, Manganese, Benzene, Fluoride, Aluminum, and Copper

Improved taste and smell of the water

SALT - The majority of systems have an untreated drinking supply so chlorine odours and taint will be present in the water, on salt treated supplies at best there is a hint of saltiness left in the water, depending on the degree of hardness, the taste of softened water becomes unbearable for most people as salt is added proportional to the hardness in the water

SALT FREE bad taste and odours such as the effects from chlorine are removed giving a pleasant drinking experience straight from the tap. There is no saltiness in the taste of the water which a salt softener has a tendency to produce

Improved bathing for skin and hair

Bathing with hard water is unpleasant because when hard water combines with soap it creates a curd that sticks to the body. Soap and shampoo will not lather well, leaving the body feeling sticky and hair feeling unclean, brittle, and difficult to manage.

SALT and **SALT FREE**- Washing one's body and hair with soft water is significantly better than with hard water. Softened water gives a pleasant bathing experience, using less soap and milder variants which are kinder to your skin. Our **SALT FREE** systems also remove chlorine which can help alleviate the symptoms of sensitive skin issues -

Household cleaning

SALT and **SALT FREE** Hard water creates the same type of soap curd on sinks, faucets, bathtubs and shower stalls, which is extremely difficult to remove. Using soft water can reduce the amount of time spent house cleaning and save you money on the cost of cleaning products.

Laundry

SALT and **SALT FREE** Washing clothes in hard water makes it difficult to get them clean again because the hardness minerals impede the effectiveness of laundry detergents and whiteners and brighteners. Thus, many people who have hard water have to use more detergent and wash their clothes more frequently, which increases the wear and tear on fabrics. Washing clothes with soft water will significantly increase the life of clothing, bedding and towels, and keep the colours looking brighter and the fabric feeling softer and cleaner.

Ease of system use

SALT- Heavy bags of salt need to be transferred and stored, regular monitoring of levels is required and an electrical/mechanical dosing is required to correctly proportion the salt/water ratio with regards to the level of hardness

SALT FREE- Our systems use cartridge filters which are compact, easy to fit and store. The system size is chosen prior to installation matching the building's filtration requirements, all subsequent cartridges required are matched to the system installed to give a measured level of treatment. Our systems use a multiple cartridge filtration combination, each element requiring differing intervals for change, the most frequent peripheral cartridge to change being 3 months, the other peripheral cartridge is changed annually, and the main central cartridge once every 4 years. A simple diary is given to monitor when change is required.

System running costs

SALT- A salt system is more expensive to have installed, requires electricity to run the metering of the treatment, increased water usage due to water wastage in the brine regeneration process, the cost of salt in terms of purchase and collection costs

SALT FREE - A salt free system is far easier and cheaper to have installed. The only running costs on a salt free system are the replacement cartridges, all in all it works out cheaper to run when you factor in the hidden costs of a salt softener.

Environmental impact of the treatment process

SALT. Many provinces worldwide have banned the use of salt-based water softeners because of the highly concentrated salt solution that is discharged into the waste water. This water is harmful to the environment and it also reduces the ability to reuse the treated wastewater.

SALT FREE- With ever increasing pressure to preserve the environment these systems are becoming the preferred method of treatment by many authorities as no salt is added at any stage into the water system so no impact attributed to salt contamination on wildlife and the environment can occur. The additional benefit to our environment is water recycling is easier and cost effective to achieve

Additional filtration if the water is well water / bore hole sourced

SALT and **SALT FREE** Neither system can stand alone and treat water from these sources, these water sources need rigorous testing and analysis to provide the correct type of filtration and bacterial control as a pre-treatment before it supplies the softener. Incorrect treatment before the installation will cause damage to the softener and could be harmful to your health.