

Electronic Descaling Technology

ScaleWatcher North America, Inc. (Oxford, PA) offers a new, non-chemical and environmentally clean technology to prevent and remove scales in domestic water-handling appliances and components such as hot water heater, shower head, nozzles in lawn sprinkler, taps, basins, toilets, and inside pipe walls. Hard water contains calcium and other dissolved minerals that accumulate on the surfaces of these water-handling appliances and components to the point where scale deposits cause significant performance reduction and nuisance.

The Origin of Scale

The main culprit of most scale problems is a supersaturated solution, in which too many mineral ions are dissolved. When conditions such as pH, temperature, and pressure change in a flow system such that the solubility of these minerals decreases, the electrostatic Coulombic attraction between the dissolved mineral ions and metal surfaces makes these minerals stick to surfaces. This is why scales are unavoidable without some active scale prevention measures.

How does the ScaleWatcher technology work?

The **ScaleWatcher** technology is based on the patented frequency-modulation technology (U.S. Patent No. 5,074,998). It uses a signal cable that is wrapped approximately 11 times around a pipe. The cable is connected to an electronic unit that sends a complex, dynamic current signal to produce extremely small (e.g., hundred times weaker than refrigeration magnets used in the kitchen), time-varying magnetic fields inside the pipe. The time-varying magnetic field produces an induced, oscillating electric field inside the pipe, a phenomenon that is well known as the Faraday's law and has been

ScaleWatcher maintains the benefit of hard water while eliminating the problems of hard water.

Hard water is desirable to our health since it is rich in minerals. A water softener removes these mineral ions by replacing them with sodium ions, for example, thus adding salt in water. In contrast, **ScaleWatcher** precipitates dissolved mineral ions into insoluble mineral crystals which move with water in a suspended form. **ScaleWatcher** technology provides all the benefits of soft water without adding any chemicals and salts in water.

What to look for after installation?

- Look at all the problem spots in your home before the **ScaleWatcher** is installed and then compare the same problems spots in about three months. Things like your shower head, the end of your tap where a build up of scale is visible – that build up will start to soften and will then be able to be easily cleaned.
- The **ScaleWatcher** unit is working if the LED signal is flickering to the top of the display.
- Look for the hard deposit around your tap start to flake off.
- You will also notice the water “feel” like it’s not as hard and will get a better lather or that your skin doesn’t feel as dry or tight after washing.
- When you first install the **ScaleWatcher** it immediately starts working changing the physical property of the calcium making the water more soluble so it feels softer. Then, the scale in the pipes and water heater starts to dissolve into the water making it feel harder. Once the old scale build up in your pipes has been dissolved (generally, a couple of months), that softer feeling you first noticed will return.
- Turn the float in your toilet ¼ of a turn. You will see the old calcium scale that was in the

<p>confirmed by a University research team in Philadelphia. The induced, oscillating electric field provides the necessary molecular agitation for scale prevention and removal. Of note is that the ScaleWatcher unit is not a magnetic device, but rather an electronic descaling device.</p>	<p>surface submerged in water disappear and no additional buildup of scale will be on the submerged float any more. Compare the cleaned surface by ScaleWatcher with the untreated surface.</p> <ul style="list-style-type: none">□ That slick feel you get when you first add salt to your softener will not be there, but you will notice a more even feeling than the extremes you would get from your softener.
--	--

Is Softener Causing Trouble In Septic Tank?



By Popular Mechanics

For the Associated Press

Q: I have a septic problem. Once a year, I have to dig up my tank cover and clean out the tank. We have a water softener, which uses about 20 pounds of salt weekly. We switched soaps, softeners, etc., but nothing helps. Waste foods and grease are kept to a bare minimum. Can you give me any suggestions to solve this problem?

A: Cleaning or pumping out a septic tank once a year really is not that bad. Most health departments recommend that the tank should be cleaned every two to four years depending on use. Even when a septic system is functioning properly, the tank should be cleaned periodically, or at least inspected for sludge buildup.

Otherwise, sludge can accumulate to a level where solid wastes will be carried out into the leaching field and eventually clog the voids in the soil and the perforations or open joints in the drain tiles. When this happens, the leaching field requires replacement, usually at a cost of at least 10 times the price of cleaning.

Apparently, the waste water from your water softener regeneration process discharges into your septic system. This is a potential problem, especially if the leaching field is installed in a finely textured clay-type soil. The salt brine in the wastewater is not broken down by the bacterial action as it passes through the septic tank on its way to the leaching field.

As the salt accumulates in the field, it can, and often does, clog the voids in the soil, thereby damaging and shortening the life of the disposal field. To eliminate this problem, the wastewater from your water softener should discharge into a separate dry well or into the ground away from your leaching field, plants, and your water well, if you have one.

Healthier Executive

Hazards of soft water: Fatal heart attacks and strokes are more common in areas where water is either naturally soft or has been treated to remove calcium and magnesium. ***Hidden danger:*** Some home water softeners are doubly risky because they remove calcium and magnesium and replace these minerals with sodium – one cause of high blood pressure. People on salt restricted diets should avoid home softeners or make sure the ones they install don't use sodium.

American Heart Association, 7320 Greenville Ave. Dallas 75231

Science / Medicine

JOEL GREENBERG
Science / Medicine Editor

IN BRIEF

SALT-BLOOD PRESSURE LINK AFFIRMED BY RESEARCHERS

Salt has a greater link to high blood pressure than previous studies have indicated, and even those not at risk should cut their salt intake by about one-third, stated by researchers in an April 1993 British Medical Journal. The researchers surveyed 78 studies involving 47,000 people to make the connection, which had been disputed in a number of recent studies.

Every study that discounted the benefits of a low-salt diet lasted less than five weeks, which was not enough time, said Dr. Malcom Law of the University of London, who directed the review. "The bottom line is that everyone--- even if their doctor didn't tell them they were at high risk for heart disease--- should reduce the amount of salt in their diets by at least 3 grams (half a teaspoon) a day," Law said in an interview.

For a typical American adult, that would mean cutting salt intake by a third--- from 1-1/2 teaspoons a day to a single teaspoon, he said.

Hypertension, or persistently high blood pressure, has been associated with an increased risk of stroke and heart attacks. About 32 million people in the United States are hypertensive.

Law said low-salt diets would save one in five people from strokes, one in six from heart disease and one in two from needing anti-hypertensive drugs. That works out to about 250,000 fewer deaths a year in the United States, he added.

HEALTH concerns

The Scalewatcher electronic hard water treatment system operates by winding a signal cable around the pipe work to be treated to create a weak magnetic field around the inside and outside of the pipe work. This field causes crystals to be created from the positive and negative ions in the water, e.g. calcium carbonate, although other types of crystals may be formed.

The Scalewatcher system neither adds nor removes anything from the water and there is no physical contact. The water treated by Scalewatcher, therefore has no adverse effect on health and can be drunk in the normal way with the crystals being dissolved by the acidity in the stomach lining.

Since 1989 over 200,000 units have been sold for residential use throughout the world. There has never been any suspicion that the Scalewatcher system has been associated with health problems of consumers nor has there been any reference to health problems associated with the product from any organisation either government or consumer.

Although there has been no scientific research into this subject, I have no hesitation in stating that water treated by the Scalewatcher system can be safely drunk by consumers and will have no adverse effect on their health.

Some people ask questions about the magnetic field generated by Scalewatcher. Is it dangerous? The electric and magnetic fields used to have an effect on the water are very low in strength and have an amplitude much and much lower than the fields created by switching on your washing machine or switching on your light bulb.

A handwritten signature in black ink, appearing to read 'J. P. de Baat Doelman', written in a cursive style.

J. P. de Baat Doelman
President Scalewatcher

Savings over a twenty year period when Scalewatcher is installed in a residential application.

Water heater energy cost.

Average is \$80 per month at \$0.16 kW/h

In a hard scale area the reduction in energy savings can be as much as 40 % when scale layers are removed. This represents a saving of \$288 annually.

One time cost of Scalewatcher 3 Star: \$499
Operating cost of Scalewatcher \$5 per year.

Over a 20 year period this gives a saving of $288 \times 20 = \$5660$ on the average energy bill for water heating. Not taking into account the rising price of energy over 20 years.

If one chooses to install a Scalewatcher instead of a salt using water softener the savings will increase dramatically.
For an average house the salt cost will be around \$150 per year. This is \$3000 over a twenty year period.

Total saving when Scalewatcher is installed instead of a water softener over 20 years.

\$5660 savings on energy

\$3000 savings on salt

\$750 salt softener installed

\$1000 replacement of water heater twice over a period of 20 years

\$500 Less maintenance on dish washer and washing machine.

Total savings: \$10910 over twenty years.

One time cost of Scalewatcher: \$499 for more than twenty years. Savings per year: \$545.50