

# Are salt-free water conditioning systems right for you?

A study of consumer preferences



## WATER SOFTENER FACTS

### Summary

At least 70 per cent of households use a traditional water softener to treat the “hard” groundwater that we rely on for our drinking supply. But this traditional technology comes at a cost. Every year, water softeners waste billions of litres of water and dispose thousands of tonnes of salt into our natural waterways. They also involve costs and maintenance for residents. New salt-free water conditioners are now available for the residential market. They can greatly reduce our environmental impact and save people money.

Between 2017 and 2018, Region of Waterloo and City of Guelph hired Metroline Research Group to complete a market research study that involved installing salt-free units in 18 volunteer households. The goals were to see how well they perform in real world conditions and how people feel about them after a year of use.

The study found that, while the technology is not for everyone, most people who tried it were satisfied. In the end, the majority of participants (13/18) decided to keep their salt-free units and continue to use them. While some people had concerns about things like their dishwasher leaving behind film or residue on dishes or having to do some extra cleaning, most people were happy with their conditioners’ performance. They appreciated benefits like saving money and effort, reducing their environmental impact, and the ability to drink water from any tap without worrying about salt content. Below you will find some information that may help you decide if a salt-free water conditioner is the right choice for your home.

## Why go salt-free?

Like many communities across North America, residents of Region of Waterloo and City of Guelph have “hard water”. Hardness is caused by naturally occurring minerals in the groundwater we depend on for our drinking source. It can cause inconveniences such as scaling in appliances and fixtures like coffee makers and hot water tanks. Some people also complain about the taste, smell, and the need to use extra soap and shampoo. To alleviate this, most of us—over 70 per cent of residents in Guelph and Waterloo Region—have a salt-consuming water softener in our home.

Using traditional water softeners comes at a cost. Just in our region alone, every year these units waste 1.9 billion litres of water for their maintenance function and dispose about 25,000 tonnes of salt into the local environment. People have to pay for salt and lug bags into their homes, then remember to regularly load their machines. Some also worry about the extra salt content going into their diets. They also consume a lot of water and electricity, which means higher utility bills.



**“I didn’t ever really think about where the salt goes... As stupid as that sounds. It’s made a big difference because now I’m aware of how much salt I use and am no longer putting it into the environment.”**

**– Study participant**

As an alternative, salt-free water conditioners have recently entered the residential market. They use new technology, known as “nucleation-assisted or template-assisted crystallization (NAC/TAC)” (see [How Does It Work?](#)). They are becoming more affordable and are appealing because they save people money on electricity and water bills, not to mention completely eliminating salt costs. Because they do not need to backwash out water and salt, they are also much better for the environment.

## The study

In 2017 and 2018, Metroline completed a study for Region of Waterloo and City of Guelph with 18 volunteer households—nine in each community (see the [Methodology](#) text box). Salt-free water conditioners were installed in these homes to see how well they worked and how people felt about them over the course of a year. Salt and water consumption were measured both before and after installation. The goals were to understand how well this new technology performs in real-world conditions and what it might take to shift the market away from salt-consuming softeners to more environmentally friendly alternatives.

## Methodology

Volunteers for this study were first recruited through a telephone survey of 1,000 homes and online survey of 218 residents. This was followed by four focus groups with a total of 26 residents. From there, 18 households (nine in Region of Waterloo and nine in City of Guelph) were selected. These homes all met certain criteria, such as having relatively new salt-based water softeners and appliances. In December 2017, professional plumbers installed salt-free conditioners in their homes at no cost to the participants. They used their units for a year and results were monitored, including water use and perceptions about performance. At the end of the year, participants completed a short survey and took part in wrap-up focus groups. At that point they had the option of either keeping their salt-free unit or switching back to their traditional water softener. Further details of the methodology can be found in the full study report at [watersoftenerfacts.ca](http://watersoftenerfacts.ca).



**“I figure it is roughly equivalent in cost in the long-term compared to a conventional water softener, so the main benefits are not having the hassle of refilling salt and being environmentally friendly.”**

**– Study participant**

## Results

In the end, 13 of the 18 homes in the study decided to keep their salt-free units and continue to use them.

The biggest benefits people saw to switching to salt-free conditioners were

- freedom from having to buy salt, lug it into the house, and remember to load it;
- saving money on salt, water and electricity bills;
- reducing their environmental impact;
- cleaned out calcium build up in the home’s plumbing; and,
- ability to drink water from any tap without worrying about salt content.

For those who did not keep their units, the biggest drawbacks they saw were

- concern that their dishwashers left behind too much film or residue on dishes and cutlery, meaning extra wiping and cleaning;
- uncertainty about whether the system is working properly or if the beads they use to condition water need replacing; and,
- a general feeling, for at least some people in the house, that the new technology does not perform as well.

**“We really like the idea of not using salt... On the other hand, we are unhappy with dishwasher performance and are concerned that appliances, like coffee makers, may not last as long.”**

**– Study participant**



## Your choice

The study showed that salt-free water conditioners are not for everyone. On one hand, the biggest barrier is that some people might find that they have to deal with more film or residue on dishes, countertops and showers, so they have to do a bit more cleaning. Everyone in the household has to agree that small sacrifices in performance and lifestyle are worth it.

On the other hand, those who are satisfied with salt-free technology don’t see any major barriers or at least see the barriers as easy enough to deal with. They appreciate saving money and the convenience of not having to maintain their water softeners. They also feel a sense of pride about helping the environment. In fact, they say that it changes the way they think about their water use.

If you are considering salt-free water conditioning technology for your home, see the [Are Salt-free Water Conditioners for You?](#) checklist below and go to [watersoftenerfacts.ca](http://watersoftenerfacts.ca) for more information. There you can also find full details about this study.

# WATER SOFTENER FACTS

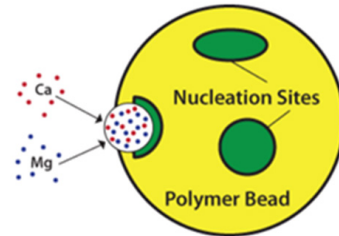
## How does it work?

Salt-free water conditioning technology uses polymeric beads that catch dissolved calcium and magnesium particles found naturally in groundwater. They convert these minerals into crystals. When they get big enough, the crystals fall off the beads. This technology does not remove calcium and magnesium. Instead, it changes the properties of these minerals, so they stay in the water but do not form scale on appliances and fixtures.

No salt or energy is needed with this technology. As well, unlike traditional softeners, it does not need to “backwash” water as part of its maintenance function.

A recent study published by the U.S. Water Reuse Research Foundation concluded that this new technology reduces scale buildup on water heater elements by over 90 per cent.\*

\* Water Reuse Research Foundation (2014). Evaluation of Alternatives to Domestic Ion Exchange Water Softeners.



Mg and Ca ions collect on nucleation sites and form solid crystals that won't attach to surfaces

## Are salt-free water conditioners for you?

When deciding how to deal with hard water in your home, you should consider what kind of tradeoffs you are willing to make in cost, performance and lifestyle. Besides salt-free conditioners, other options for reducing your impact on the environment include foregoing a water softener altogether, or only softening your hot water. If you are considering a salt-free conditioner, this study showed that the majority of participants are quite happy with this new technology, but it is not for everyone. Consider the following questions before deciding to install one in your home:

- ✓ Is contributing to protecting our waterways and natural environment important enough to you that you are willing to make some small sacrifices in lifestyle?
- ✓ Would you like to save money on salt, electricity and water bill costs?
- ✓ Would you like the ability to drink water from all your taps without worrying about extra salt in your diet and different taste?
- ✓ Would you like to avoid buying salt and lugging it into your home?
- ✓ Can you put up with a bit more film on dishes and countertops or are you willing to do a little more cleaning and polishing?
- ✓ How do you feel about some uncertainty around how your new system is performing and whether the beads in it need replacing?
- ✓ Will everyone in your home be onboard with this new technology and the potential downsides?