

# Safe Well Water RI

Trusted, expert information

## Tip Sheet 21



*“Tip sheets helped us learn about our well water.”*

**Get Tip Sheets** at [www.rivelltesting.org](http://www.rivelltesting.org):

- 14 Tip Sheets about harmful substances
- 10 Tip Sheets about treatment choices
- 3 Tip Sheets about other topics of concern

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### Look for the NSF seal on water treatment devices.

NSF International is a non-profit group that sets performance standards for water treatment devices. Learn about NSF here: [www.nsf.org](http://www.nsf.org)

# Ion Exchange Water Treatment Systems

## Test and talk before you treat!

**Use a State-certified testing lab.** Find a list of certified labs here: [www.health.ri.gov/find/labs/privatewelltesting](http://www.health.ri.gov/find/labs/privatewelltesting).

**Call and talk with a State water quality expert.** We can review your water test results with you and suggest ways to treat problems.

- » University of Rhode Island Water Quality Program  
Direct line to water expert: 401-874-5398
- » Rhode Island Department of Health  
Ask for the Private Well Program: 401-222-5960

**If you decide to buy a treatment system,** work with a water treatment professional. They can help design a system to fit your needs. Before you buy a system, get a least 3 price quotes. Learn the questions to ask. See Tip Sheet 16.

**CAUTION:** Be aware that sometimes more than one system is needed to treat water. Consider whether using an alternative water supply such as putting in a new well, using public water if available, or using bottled water may be a better long-run solution.

## When would I need an ion exchange system?

**Certain substances in the water** may be best treated with an ion exchange system.

**Ion** is a term from chemistry that refers to an atom or molecule that has a positive or negative electrical charge. An ion exchange treatment system uses an electrical charge to remove unwanted substances from drinking water and exchange them with another substance.

### Two different types of ion exchange treatment:

1. A **Cation** exchange treatment system, also called a water softener, is most often used in Rhode Island to remove **iron and manganese** ions from the water. This system can also remove calcium and magnesium, minerals that make the water ‘hard’ (but are not commonly a problem in Rhode Island well water). Hard water can cause scale build up in appliances, plumbing, and in showers and tubs.
2. An **Anion** exchange system can remove **nitrate, arsenic, sulfate, bicarbonate, and selenium**.



## How ion exchange systems work

**Ion exchange systems are whole-house treatment.** This means they treat all the water used in the household. The major part of these systems is a large tank that contains mineral beads (resins), which can pull out unwanted substances from the water running into it. The electrical charge of the ions in the mineral beads reacts with the electrical charge of the unwanted substances. The unwanted ions, like iron, are exchanged for another substance that is in the mineral beads. In this case, sodium or potassium chloride ions are commonly used in the mineral beads and exchanged for the iron.

## Issues to think about before buying a an ion exchange treatment system

First – be sure you understand which type of ion exchange system you need, Cation or Anion. Know what substance(s) need treating and the amounts of each of the substances you need to remove, based on your water test results.

Then, you and your treatment professional should talk over:

- ▶ **How much treated water you need.** This helps determine the size of the treatment system. Figure on each person in your household using about 75 gallons of water each day. Multiply 75 by people in your household to get the total amount of treated water you need.
- ▶ **Your rate of water flow and pressure.** Ion exchange systems require a minimum water flow and pressure. You can check the pressure gauge on the pressure tank in the basement.
- ▶ **Whether you will ‘flush’ the mineral beads (resins) yourself, or whether you want an automatic system.** The resins must be flushed regularly so they continue to work. This is also called backwashing.

Remember: Get at least 3 price quotes from different water treatment professionals.

## If I have an ion exchange system, how do I maintain it?

All water treatment systems must be maintained according to the instructions that come with the unit.

- **Keep all paperwork and instructions** that come with the unit.
- **Keep records and receipts** of equipment maintenance and repairs.
- **Make sure the mineral beads (resins) are ‘flushed’** (backwashed) on schedule. Follow the instructions that come with the unit.
- **Replace the mineral beads (resins) on the schedule** stated in the instructions. Use a water treatment professional for this.

## What else do I need to know about an ion exchange system?

- Have the unit properly installed by a professional.
- Make sure it works. After installing the system, have your water tested at a State-certified lab.
- Be prepared for extra salt in your water. Be aware that a cation exchange system will likely add sodium or chloride (salts) to your water. This is usually not a problem for healthy people. If this is a problem, we can suggest systems that do not add sodium.
- Be prepared for waste water. When the mineral beads (resins) are flushed, about 50 gallons of waste water (backwash) are created. The Rhode Island Department of Environmental Management recommends discharging it to a drywell below the ground surface. You will likely need to hire a professional to dig and plumb a drywell.

If you discharge the waste water to your septic system, make sure your system can handle this extra load. And, be aware that this waste can make it harder for solids to settle in your septic tank. As a result, solids and grease may get into your leach field. If you have an advanced treatment septic system, a water softener’s discharge into it may void the warranty. For more information, see [www.dem.ri.gov/programs/benviron/water/permits/privwell/pdfs/backwash.pdf](http://www.dem.ri.gov/programs/benviron/water/permits/privwell/pdfs/backwash.pdf).