

## Benefits of Removal of Water Hardness (Calcium and Magnesium Ions) from a Water Supply

### Overview

The US Department of Energy says “water heating can account for 14%–25% of the energy consumed in your home.” It is the second highest energy consuming area of a home, next to heating and cooling. Monthly water heating bills can be reduced substantially by softening hard water supplies. This study shows water softeners to be one of the very highest energy-saving and best “Green” technology appliances that a homeowner can own.

In 2009 the Battelle Memorial Institute in Columbus, Ohio was retained by the Water Quality Research Foundation (WQRF) to develop and run tests to determine how much energy savings household water softeners can provide. The independent Battelle Institute evaluated the energy and costs in heating hard water versus the savings with softened water. They also examined effects on clothes washers, faucet fixtures, showerheads, and dishwashers using hard water versus softened water.

Results of the study demonstrate that untreated hard water can cause significant efficiency losses and added costs in water heating – up to 24% in some cases. Battelle also found hard water to rapidly lead to clogged showerheads, in as soon as a year and a half of regular use. After just one week of constant testing with hard water, more than three-fourths of showerhead nozzles became clogged, according to laboratory results. All appliances and fixtures using softened water, meanwhile, performed nearly as well throughout the testing as on the day they were installed.

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