Hard Water's No Problem

Mary Odegard
Iowa State College

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It leaves the ring in your bathtub, scum in the dishpan, increases your soap bills by as much as one-third, and causes your clothes to turn gray after washing. The culprit—hard water!

In 29 out of 48 states, the water is hard. However the amount of hardness in water may vary greatly in the same state. This hardness can be measured in two ways: in parts per million (there are usually between 10 and 1,800 parts of calcium and magnesium per million parts of water), or in grains (parts per million divided by 17.1). Water is classified according to grains in the following table:

<table>
<thead>
<tr>
<th>TYPE OF WATER</th>
<th>HARDNESS EXPRESSED IN GRAINS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Water</td>
<td>Less than 4</td>
</tr>
<tr>
<td>Slightly Hard</td>
<td>4 to 7</td>
</tr>
<tr>
<td>Moderately Hard</td>
<td>7 to 10</td>
</tr>
<tr>
<td>Hard</td>
<td>10 to 20</td>
</tr>
<tr>
<td>Excessively Hard</td>
<td>Above 20</td>
</tr>
</tbody>
</table>

Water in the Ames area, as it comes to the water plant, has a hardness of 22 grains. After it has been softened at the plant, it is sent to the women's dormitories and sorority houses with a hardness of 4.5 grains. Since it is still slightly hard, you may find it advantageous to use one of these easy methods for further softening your water.

You can soften water with soap—in fact, that is what always happens when you use soap in unsoftened water. It is an expensive softener, however; it forms 'soap curd'—an insoluble precipitate in the form of a scum, which may leave gray flecks on your clothes.

**WATER SOFTENERS**

**Washing Soda:** Use only for cottons and linens. It is the least expensive, but won't soften all kinds of hard water. Use one pound of soda per quart of water and of this solution, use 2 tablespoons per gallon of water. If too much is used, clothes will yellow when they are ironed.

**Commercial Water Softeners:** Most commercial softeners are of the precipitating type, just like washing soda, tri-sodium phosphate and soap. Precipitating means that they react with the water's mineral salts to form an insoluble compound. Examples of precipitating softeners are Mello, Climalene and Soi lex.

When washing at any time, it is wise to try to suit your choice of soap or synthetic detergent to the type of wash you are doing. Synthetic detergents can be bought for either mild or all-purpose laundry use.

The mild ones, such as Breeze, Dreft and Vel, are good for woolens and fine fabrics, but not for family washes.

All-purpose synthetic detergents contain "builders" to make them more alkaline for added cleansing and water-softening ability. Examples of synthetic detergents designed for general laundry use are Tide, Rinso, Fab and Surf. These detergents do a much better job in unsoftened hard water than soap; however, if you use a softener, a good all-purpose soap still cannot be equalled for soil removal.

You will notice a difference in the amount of suds created by equal amounts of these detergents. Most of the mild synthetic detergents make good suds, and many of the all-purpose type are excellent sudsers. Sudsing ability, however, does not indicate cleansing ability, for some of the special types of detergents are designed to make almost no suds at all. Such a detergent as All is recommended for use in some automatic washers to prevent an excess of suds, which may hinder effective washing action and clog the machine mechanisms.

Wherever you live in the future, you can be certain that water will continue to play an important part in your everyday life. Knowing the characteristics of the water you are using will help you to make the most of its cleaning power by choosing your detergents to suit the job.