

Shea Johnson

Junior Division Chemistry

Soap Wars: Soft Water vs Hard Water

This year I wanted to find out if different types of water affected how much soap you use to clean. I used four types of water - R.O., soft, distilled and hard water. All of the water came from my grandparent's well. I used Ivory Snow clothes soap because it is over 99% pure soap. I labeled 16 quart jars according to the type of water. Four tests for each type of water. I put 1 cup of water in each specific jar. For the control group, each was shaken for 20 seconds with no soap. On the first test, I put 1 tablespoon of Ivory Snow clothes soap in 4 jars of different water and shook each one for 20 seconds, I then measured the suds. Second test was 1 teaspoon of Ivory Snow soap and the third test was 1/4 teaspoon of Ivory Snow soap. I repeated these tests one more time for comparison. My results showed that the R.O. water created the most suds in each test. Soft water was second best, when I thought it would be the best. Distilled water was third and hard water created the least amount of suds. After learning about each type of water and experimenting, the R.O. water, which is the purest water, is more efficient in cleaning.