**Hard and Soft water**

**Hard water is any water containing an appreciable quantity of dissolved minerals.**

**Soft water is treated water in which the only cation (positively charged ion) is sodium.**

**Soft water, on the other hand, may taste salty and may not be suitable for drinking.**

**If soft water tastes bad, then why might you use a water softener?**

**The answer is that extremely hard water may shorten the life of plumbing and lessen the effectiveness of certain cleaning agents.**

**When hard water is heated, the carbonates precipitate out of solution, forming precipitates in pipes.**

**In addition to narrowing and potentially clogging the pipes, the precipitate prevents efficient heat transfer, so a water heater with white residue in it will have to use a lot of energy to give you hot water.**

**Soap is less effective in hard water because its reacts to form the calcium or magnesium salt of the organic acid of the soap.**

**Hard water can be softened (have its minerals removed) by treating it with lime or by passing it over an ion exchange resin.**

**Calcium and magnesium are the most common minerals that cause hard water.**