

## Scum Formation

Soap contains salts such as sodium stearate and sodium palmitate and when calcium ions in hard water mix with soap, a precipitate of calcium stearate / calcium palmitate is formed. In the following equation, "X" represents either the stearate/palmitate:  $\text{Ca}^{2+} (\text{aq}) + 2\text{X}^{-} (\text{aq}) \rightarrow \text{CaX}_2 (\text{s})$

Calcium (in hard water) + Palmitate/stearate ions in soap → Scum

Some advantages of hard water as follows:  
Taste supposedly better   Strengthens bones/teeth   With correct diet, it can reduce the risk of heart disease

Some disadvantages of hard water:  
Needs more soap to form a lather   Scum formed in wash basins etc...   Scale will build up in pipes and reduce the efficiency of machinery using those pipes

## About the Author

Source: <http://crampuppy.com>