

Living in hard water areas costs you more to heat water. Make sure your geyser's element is running at full efficiency

Issued by [Soapbox Communications](#)

30 May 2022

Hard water is water that has a high mineral content, especially of calcium, magnesium and limestone. It comes about when water filters through chemicals like limestone, chalk or gypsum that occur naturally in the region's soil. In South Africa, there are a significant number of areas that are affected by hard water such as the Northern and southern Cape and the Limpopo Basin. Although this high mineral content could have slight positive effects on your health, it causes a lot of damage to water equipment, like geysers, bore hole pumps and kettles.



Xtend after 12 months in hard water pre-clean



Xtend after hard water cleaning – good as new

Limescale builds up on heating elements

Most geysers have standard heating elements, which is what heats the water in your geyser. These elements are made from coiled resistive wire covered by a soft metal. The high mineral content in hard water builds up on the hottest part of the geyser, which is (obviously) the heating element, causing a limescale build-up.

Limescale reduces your geysers efficiency

Over time, this limescale build-up acts as an insulator, forcing the element to work harder and harder to heat the water in the geyser. As the element becomes less and less efficient, the running costs of heating your geyser increase as it now takes more energy – usually in the form of costly electricity – to heat the water. Limescale build-up can cause an up to 50% reduction in efficiency in your geyser. Eventually the heating element will fail because of excessive heat required to heat through the limescale build-up. In fact, limescale build-up is the most common cause of failing geysers.

Do the maths:

How much does your geyser cost?

$1 \times \text{Bath (100l)} + 2 \times \text{shower (50l)} \times 365 \text{ days} \times 45 \text{ degrees (temperature change)} \times 4.182/3600 \text{ (science!)} = 3816 \text{ kWh (units of electricity)} \times \text{R3.00}$

= R11 500 each year to heat your geyser (before heat losses and reduced efficiency from limescale)

Research shows that limescale from hard water costs you money

An American [study](#) done by the Battelle Memorial Institute in Columbus, Ohio found that every five grains per gallon (3,78 litres) of water hardness causes a 4% loss in efficiency. Their research showed that water temperature decreased by 5C with a limescale thickness of 2 mm after 480 seconds, and a 0,5 mm of hard scale increased energy costs by 9,4%.

Solutions

One way to extend the life of your geyser's heating element is to replace the standard element with a self-limiting ceramic element, called PTC, that comes protected in a sleeve of marine-grade stainless steel. PTC elements have a lower operating temperature, 270C compared to the 500C operating temperatures of standard resistive elements. The lower heat reduces the precipitation of solids out of the water. PTC elements also have a low watt density which also helps in reducing scale build-up and the strong stainless steel casing provides long-term protection from scale build-up on the actual ceramic element.

Even in soft water areas, PTC elements are up to 25% more energy efficient as they operate at a lower temperature. Check out PTC elements from XTEND Elements, to solve your hard water heating issues.

For more, visit: <https://www.bizcommunity.com>