

Guernsey Water Advice Sheet

Water Hardness



What is the difference between hard and soft water?

Certain materials in water react with soap, causing a precipitation which appears as a 'scum' or 'curd' on the water surface. Until enough soap has been dissolved to react with all the materials, no lather can be formed. Water which behaves like this is said to be 'hard'.

When synthetic detergents are used instead of soap, the inconvenience of hard water is not so strongly felt, because the detergents do not cause a precipitation of the hardness compounds. Nevertheless there are still many objections to hard water, the principle one being that when water is heated in boilers and heating systems, the hardness compounds precipitate to form a hard compound on the surface of the boiler and the interior of the pipes. The portion of the hardness which is deposited when water is boiled is called 'temporary hardness'; the remainder is called 'permanent hardness', or more precisely, 'non-carbonate hardness'.

The classification of hardness as calcium carbonate (CaCO_3) in milligrams/litre is:

0 - 50 mg/l -	Soft
50 - 100 mg/l -	Moderately soft
100 - 150 mg/l -	Slightly hard
150 - 200 mg/l -	Moderately hard
200 - 300 mg/l -	Hard
Over 300 mg/l -	Very hard

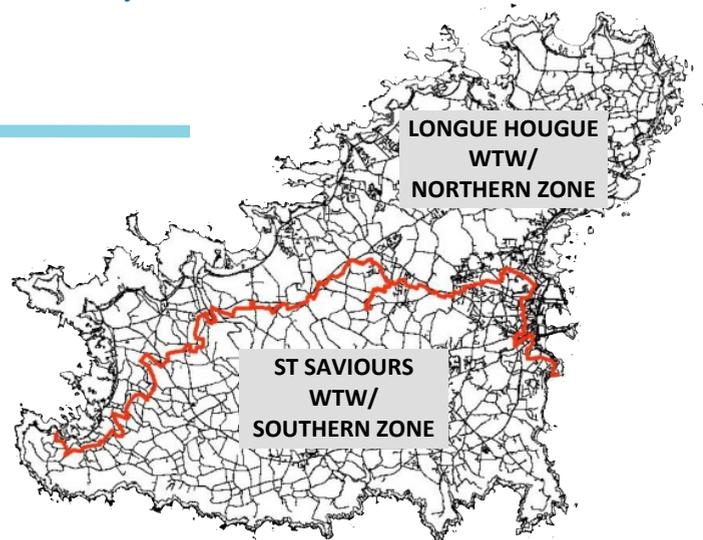
St Saviours WTW (Water Treatment Works) distribution zone typically has a CaCO_3 reading of 70 - 100mg/l, which is classified as 'moderately soft' to 'slightly hard'.

Longue Hougue WTW distribution zone typically has a higher CaCO_3 figure of 165 - 171mg/l, which is classified as 'moderately hard'.

Is my water hard or soft?

The type of water customers receive will depend on the pumping regime at the time, but will generally follow the geographical location of the property and can be approximated from the map on the right.

In summary, if you live in the south of the Island (St Saviours WTW distribution zone), the water is typically 'moderately soft' to 'slightly hard'. If you live in the north of the Island (Longue Hougue WTW distribution zone), then the water is typically 'moderately hard'.



What about my dishwasher?

Manufacturers of dishwashers also classify water hardness, but use other units such as **German degrees ($^\circ\text{dH}$)**, **French degrees ($^\circ\text{fH}$)**, **millimoles/litre (mmol/l)** and **Clarke's scale**. The table below shows how the hardness figures for St Saviours and Longue Hougue are represented in these other units:

	$^\circ\text{dH}$	$^\circ\text{fH}$	mmol/l	Clarke's scale
St Saviours	4.0 > 6.0	8.0 > 11.0	0.8 > 1.0	5.0 > 7.0
Longue Hougue	7.0 > 8.0	12.0 > 13.0	1.0 > 1.3	8.0 > 9.5

