

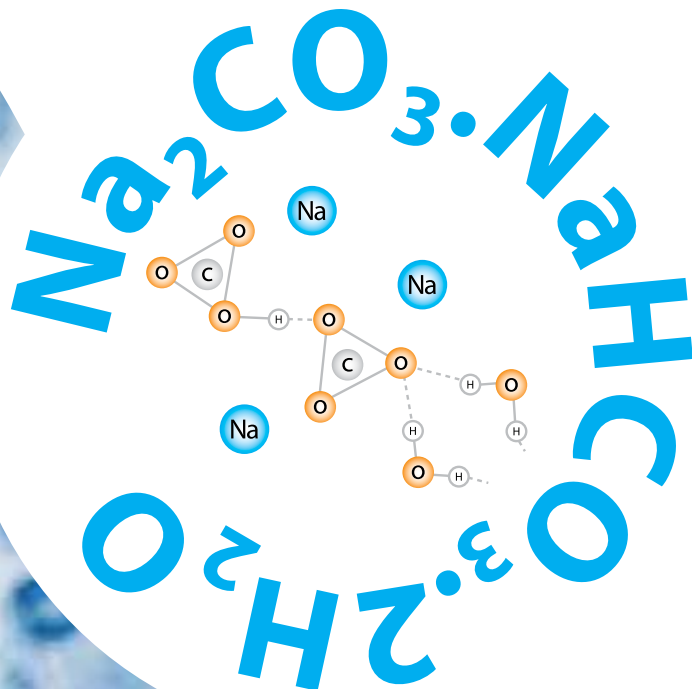
Crex[®]

The unique
water softener



TATA

TATA CHEMICALS EUROPE



Crex[®] is a unique alkaline product that is ideal for a wide range of household, personal care and industrial uses.

Manufactured by Tata Chemicals Europe at its dedicated plant in the UK, Crex[®] is a free-flowing, non-irritant white powder. It is produced by the recrystallisation of Sodium Carbonate and Sodium Bicarbonate, to form a single crystal of Sodium Sesquicarbonate ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$).

Crex[®] avoids pH surges seen with blends of Sodium Bicarbonate and Sodium Carbonate due to their different dissolution rates.

The varied and valuable properties of Crex[®], such as water softening, high solubility, mild alkalinity, free flow and excellent buffering capacity, lead to uses in a wide range of applications.

Crex[®] is available in 25 kg, FIBCs (flexible intermediate bulk containers) and bulk format.

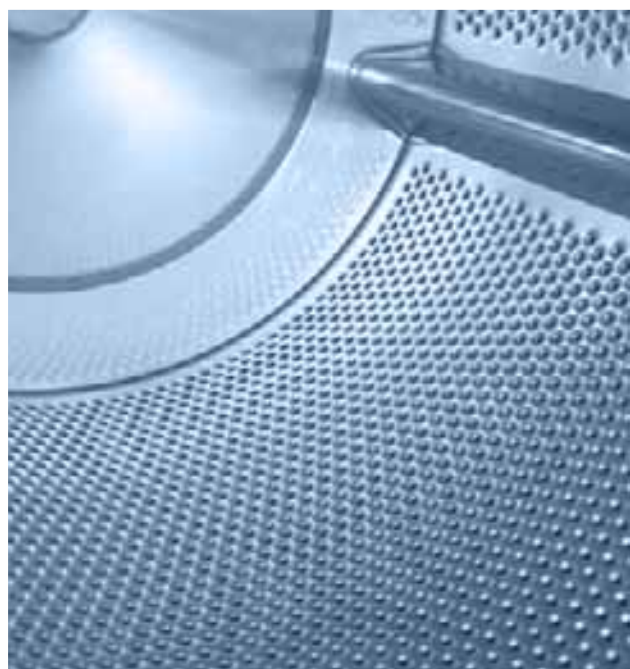
Technical Data

Chemical name	Sodium Sesquicarbonate
Trade mark	Crex®
Appearance	White powder
CAS No	533-96-0
Pouring density	0.80g/cm ³
Typical packing density	0.97g/cm ³
pH of 2% solution at 20 C	9.9
Solubility at 20 C	17.1g/100g water
Alkali equivalent	44.1% Na ₂ O
Molecular weight	226.03
Median size	160-200 microns

Applications

Crex® has advantages over Sodium Bicarbonate and Sodium Carbonate blends, including:

- a single particle size
- no risk of particle size separation
- avoids pH surges due to the different dissolution rates of Sodium Bicarbonate and Sodium Carbonate
- only one raw material to purchase, store and handle.



Detergents

Heightened consumer awareness of environment sustainability and the impact of detergents on the future good of the planet due to:

- water eutrophication by phosphates
- insolubility of zeolites

has led manufacturers to evaluate new detergent builder systems.

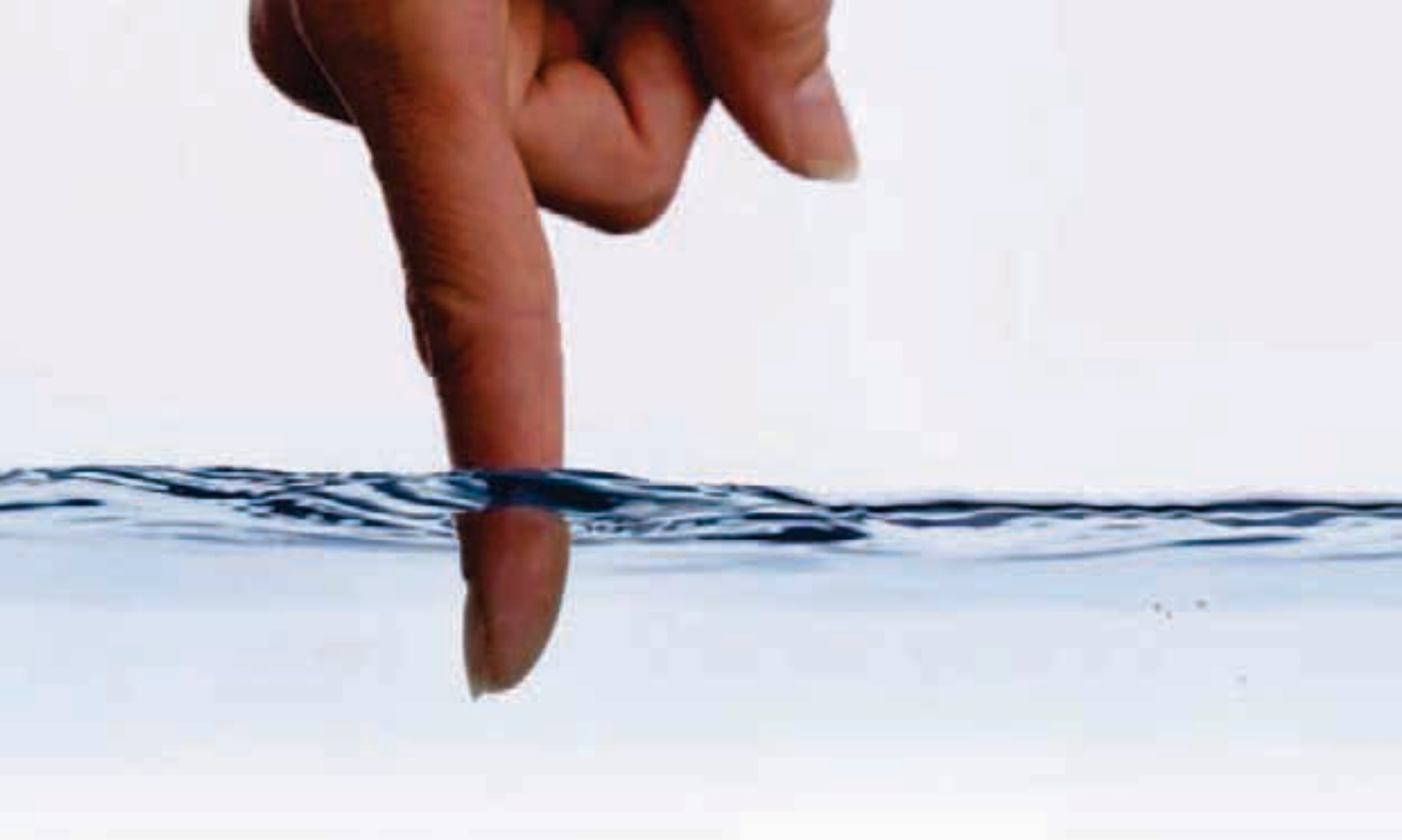
The water softening properties and solubility of Crex® make it an ideal material for the replacement/partial replacement of phosphate and zeolite builders.

Crex® is non-irritant, which gives an advantage to customers wanting to satisfy eco labelling requirements.

The solubility of Crex® at low temperature is beneficial to detergent manufacturers focused on developing products that can be used at lower temperature, in order to reduce energy consumption in washing processes. A further benefit of Crex® is its non-irritancy, which gives a significant advantage to formulators wanting to satisfy eco labelling requirements for products e.g. White Swan.

This makes the versatile Crex® particularly suitable for:

- hand-wash products, designed for delicate fabrics such as silk and wool
- colour care formulations
- dishwashing powders.



Water Softeners

Crex[®] can help overcome scale formation and increase the efficiency of soap and detergents by removing Ca and Mg salts from hard water.

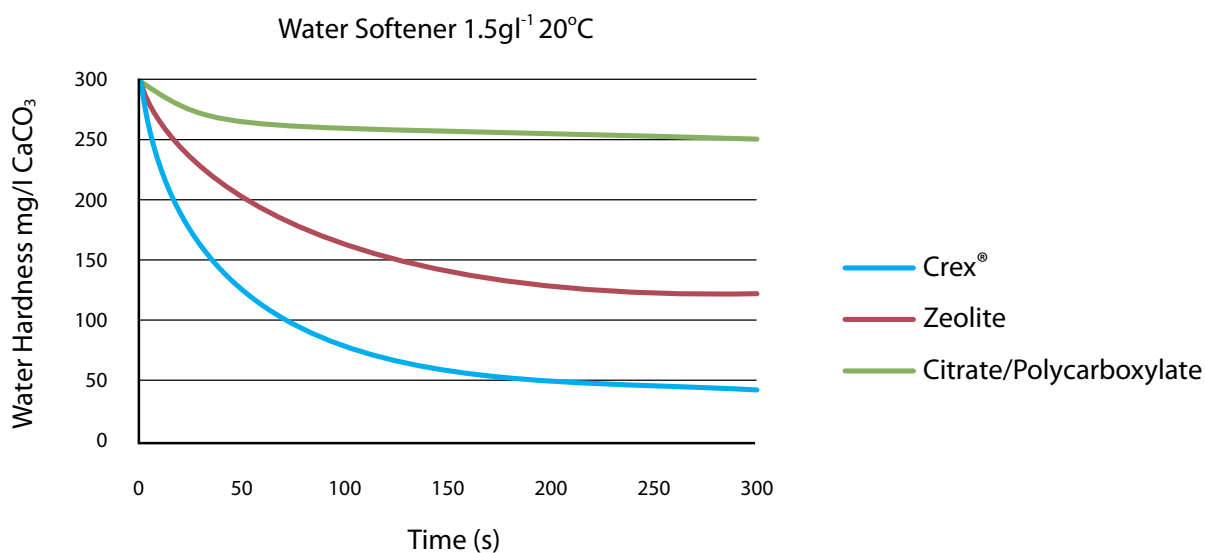
Crex[®] is ideally suited as a water softening agent, as it:

- does not have the unacceptable characteristics of a strong alkali
- is much more effective than milder alkalis.

Crex[®] is a highly water soluble softener that does not contain phosphates or insoluble zeolites.

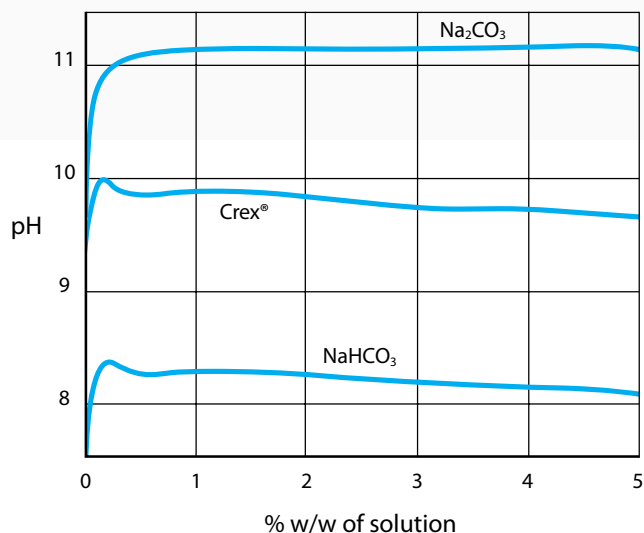
Water softeners based on Crex[®]:

- help reduce limescale formation in washing machines
- are a cost effective way of reducing detergent use.





A comparison of the pH of Crex[®] solutions with other Sodium Carbonate salts



Bath Salts and Powders

Crex[®] is used in a wide selection of bath additive formulations and proprietary bath salts, including personal care (effervescent bath cubes) and health products (effervescent foot salts). Crex[®] provides a feel of 'silkeness' to the water, improving the 'bathing experience' – offering users a feeling of deep relaxation, helping relieve stress and tension and promoting tranquility.

Crex[®] also has an attractive appearance when used to form the basis of proprietary bath salts.

Its chemical stability makes Crex[®] a very suitable product for this purpose. It softens the bath water to the correct alkalinity and has good perfume and colour absorption properties – its moderate pH allows Crex[®] to be used with a variety of colours, essences and perfumes. It is also compatible with other bath additive ingredients, including high foam surfactants.

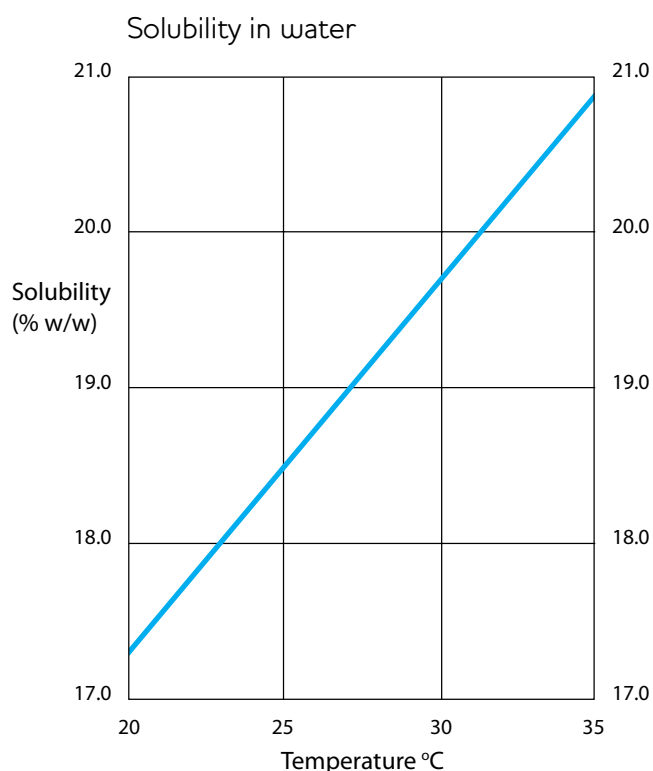
Crex[®] can also be compacted to produce bath cubes – its particle size allows the product to flow freely and tablet easily. It also has an attractive appearance when used to form the basis of proprietary bath salts.

Cleaning

Crex[®] is a very effective non-irritant ingredient in cleaning material formulations. Readily soluble in water, Crex[®] is a relatively mild alkali and is safe to use.

Crex[®] is a major component of sugar soap, which can be used for:

- cleaning and preparing paint work
- cleaning building exteriors
- removal of oil and grease from concrete floors
- general household cleaning – ceramic tiles and bathroom.



Other Application Areas

Crex[®] can be used as a highly effective buffering agent where an intermediate pH of 10 is required. At this pH range, Crex[®] would be preferred to blends of Sodium Bicarbonate and Sodium Carbonate.

Crex[®] is used as a single treatment in swimming pools to provide the balance of pH and alkalinity required to neutralise the acid introduced from cleaning products and other sources.

Crex[®] can also be used as a carrier of active ingredients in product formulations, such as pesticides. It can be presented as a carrier in powder, granular and tablet form.

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