ACTIFLO® SOFTENING

High-speed decarbonation and/or softening solution

Designed to improve the quality of hard water, Actiflo Softening combines the operations of clarification and **decarbonation/softening** in a single compact unit to reduce the **alkalinity** and **hardness** of water. At the same time, the process also eliminates other undesirable components such as **silica, heavy metals, fluorides and phosphates together with suspended solids and organic matter.**

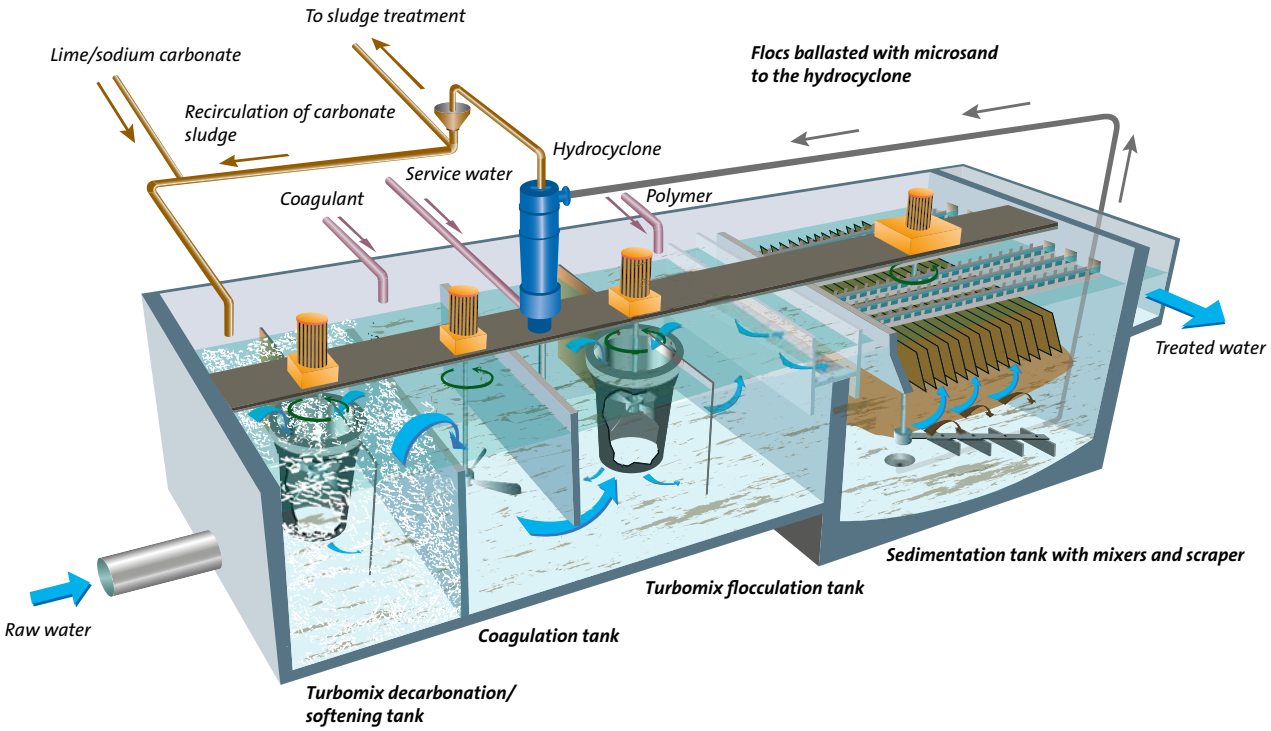
Fast and effective, Actiflo Softening produces very high-quality water for **industrial and municipal applications.**

The Actiflo Softening process

The operating characteristics of Actiflo Softening are identical to those of Actiflo, giving it the advantages of fast, high-performance treatment.

Upstream **of the coagulation, flocculation and sedimentation basins,** Actiflo Softening has a **Turbomix™ reaction tank** into which chemical products are injected to form insoluble compounds.

A recirculation circuit with a specific hydrocyclone recovers clean microsand, returns the decarbonation and softening sludge to the reactor and purges excess sludge from the process.



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Advantages

- Small footprint: up to 10 times more compact than conventional decarbonation or softening processes
- High upward flow rate: up to 27 gpm/sf
- Easy installation in existing tanks
- Improved mixture and accelerated chemical precipitation reaction thanks to the Turbomix tank
- Reduced coagulant consumption due to the recycling of carbonate sludge in the Turbomix tank
- Sludge characteristics: up to 8% dry matter; can be easily thickened and dried
- Easy to commission: start-up in a few minutes
- Can be fully automated and deployed in existing plants at reduced cost

Applications

Actiflo Softening, an ideal solution for:

Industrial applications

- Pre-treating water to avoid membrane fouling
- Production of make-up water for cooling towers and water recycling
- Treating water used in oil and gas production
- Treating SAGD (Steam Assisted Gravity Drainage) water in condensate circuits
- Treating wastewater from combustion gas desulfurization and acidic mining effluents
- Reusing wastewater in iron, steel and other metal industries
- Phosphorus co-precipitation

Municipal applications

- Decarbonation and softening of surface or borehole water to produce drinking water

Performance

Inlet Hardness	100 – 500 mg/L as $CaCO_3$
Clarified Water Hardness	< 35 mg/L Calcium as $CaCO_3$ < 50 mg/L Magnesium as $CaCO_3$
Clarified Water TSS	5 – 10 mg/L
Clarified Water Turbidity	1 – 2 NTU

REFERENCES

> Chelyabinsk Power Plant, Chelyabinsk, Russia - 2.3 MGD (2015)
> Athy, Kildare, Ireland - 7.6 MGD (2014)
> EDF Bouchain, France - 6.8 MGD (2014)
> ENEL, Porto Tolle, Italy - 7.1 MGD (2014)
> Grande Raffinerie Oranaise de Sucre (GROS), Oran, Algeria - 0.26 MGD (2014)
> Vale, Long Harbour Processing Plant, NL, Canada - 7.6 MGD (2013)
> Abengoa Solana, Gila Bend, AZ, USA - 6 MGD (2013)
> JIFCO sulfuric and phosphoric acid plant, Eshidiya, Jordan - 3.4 MGD (2013)
> Kerry Ingredients & Flavors, Listowel, Ireland - 0.95 MGD (2013)
> Laurier Station, QC, Canada - 0.53 MGD (2013)
> Gahard, France - 0.53 MGD (2011)
> Coca-Cola, FEMSA, Acapulco, Mexico - 0.63 MGD (2009)

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