



# ACTIVATED CARBON FILTRATION

## Activated carbon filter

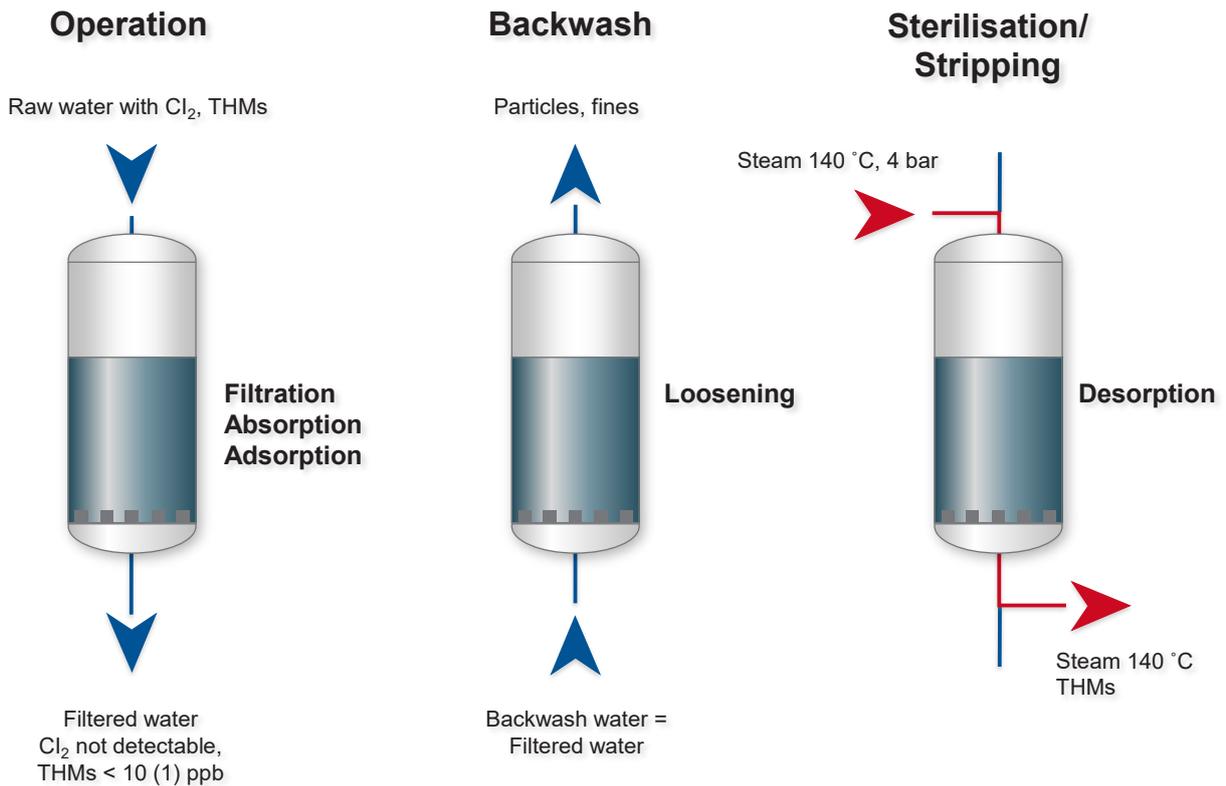
Activated carbon filters are used for dechlorination and adsorption. Dechlorination is a very rapid process, in which the activated carbon participates in the reaction and the free chlorine is converted to chloride. The reaction takes place within seconds in the upper 10 cm of the filter bed.

In the case of adsorption, which is used for THM removal (tri-halo-methane) or the elimination of unwanted odour and colour, the activated carbon filter is used as a chromatographic bed. Depending on the concentration and the polarity of the constituents to be removed and their mutual interference, the contact time is determined which is typically between 8 and 20 minutes.

For THM adsorption monitoring of the treated water quality is required. At breakthrough, the carbon must be replaced immediately. New plants are equipped with steam devices to strip out the volatile components at high temperatures of 140°C. This operation extends the life of the carbon up to five times.

Furthermore it is important to construct the filter vessel so that proper sterilisation with either hot water (min. 95°C) or steam (up to 140°C) is possible. The only suitable material is stainless steel, whose quality is selected depending on the chloride content of the water. In addition, a nozzle plate for even distribution of clean water and steam across the carbon bed should be installed, and the nozzles should be covered with filter gravel.





The sterilisation of an activated carbon filter should generally be done at least once a week or more often if the microbiological parameters are deteriorating. Furthermore, if the carbon filtration consists of more than one vessel, it is recommended to always operate all carbon filters in parallel. A filter should only go out of operation for sterilisation and / or backwashing, because a continuous operation is an effective way to prevent early microbiological growth on the carbon.



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