

# **006 A method for direct measurement of the floc size distribution and the quantification of the activated sludge flocculation dynamics**

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Due to the fragile biological nature, irregular shape and heterogeneous composition of the activated sludge flocs, the measurement procedure and technique used is at a high importance as it may affect the results and lead to a misinterpretation of the data.

A CIS-100 (Ankersmid, Belgium) device has been used to measure and characterize the structural properties of the activated sludge flocs and steady state conditions as well as to quantify the flocculation dynamics under the influence of different process parameters.

The effect of average velocity gradient (G) and calcium addition on the activated sludge flocculation process was monitored on-line for a particular sludge sample. The floc breakage and aggregation phenomena were recorded for different G values while calcium addition demonstrated a high affinity of the investigated sludge sample to these ions leading in a fast aggregation process, independent of the mixing rate. The results showed that, even known as a counting technique which normally needs longer measurement, the device was fast enough to quantify the floc size dynamics. The observed trend of the results was confirmed by the direct visualisation of the process by using the camera and the dynamic image analysis feature incorporated inside the device

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