

**Klos, M. Application of Particle Counters in Rapid Filter Control in Surface Water Treatment System. *Ochrona Srodowiska* 2014, Vol. 36, No. 2, pp. 17–20.**

**Abstract:** Application of particle counting in rapid filter control was presented as an addition to the standard nefelometric method of water turbidity measurement. The studies were performed on a real technological surface water treatment system using pre-hydrolyzed coagulant. It was stated that the particle counter allowed better quality monitoring of a filtrate in comparison to water turbidity measurement alone. In addition, it allowed rapid identification of precipitated hydrolysis products of coagulants characterized by high degree of aluminum form polymerization. It was demonstrated that membrane fouling by post-coagulation suspensions resulting from pre-hydrolyzed coagulant overdose led to deterioration in the filtrate quality, defined by the general particle size within the range from 1 to 15  $\mu\text{m}$ . Inadequate filtrate quality was maintained even following the adjustment of the coagulant dose to optimal level. Therefore, in case of the pre-hydrolyzed coagulant overdose (out of sweep coagulation range) termination of the filtration cycle and filter bed washing are required.

**Keywords:** Suspended solids removal, sweep coagulation, rapid filtration control, pre-hydrolyzed coagulant.