

Domanska, M., Lomotowski, J. Rate of Chlorine and Chlorine Dioxide Decay in the Water-pipe Network. *Ochrona Srodowiska* 2009, Vol. 31, No. 4, pp. 47–49.

Abstract: This paper presents original results of a study on the rate of chlorine and chlorine dioxide decay in treated water. Samples were taken from 14 water distribution systems which are in service in Lower Silesia. The study has revealed that when the water is characterized by a high 5-minute chlorine demand, the decay of chlorine dioxide occurs at a faster rate. It is therefore necessary to verify the thesis that the decay of chlorine dioxide in the water distribution system proceeds at a slower rate than the decay of chlorine. It has furthermore been observed that the value of the rate constant of disinfectant decay undergoes changes during tap water transport. The investigations into a segment of Wrocław's water pipeline have revealed differences in the kinetics between chlorine decay and chlorine dioxide decay during water flow in the water-pipe network. The results obtained corroborate the necessity of conducting point tests to determine the local rate of decay for both the disinfectants in the water with the aim to predict their concentrations in the entire water distribution system. Such tests are indispensable when replacing the disinfectant used with another one, or when determining additional disinfection points in large water distribution systems.

Keywords: Tap water, disinfection, chlorine, chlorine dioxide, rate constant of disinfectant decay.