

Laskowski, T., Swietlik, J., Raczyk-Stanislawiak, U., Sroka, M., Olejnik, A., Nawrocki, J. Drinking Water Composition Variation Following its Stagnation in Pipes Under Model and Actual Flow Conditions. *Ochrona Srodowiska* 2013, Vol. 35, No. 3, pp. 59–62.

Abstract: Corrosion modeling method using cast iron filings was proposed for water distribution system under typical flow and stagnant conditions. Use of iron filings (0.8–1.0 mm) of large specific surface area allowed water quality variations monitoring using relatively small amounts of material. Comparison of results obtained under model and actual pipe flow conditions confirmed that the process of corrosion can be reliably approximated by experiments with iron filings. Following period of stagnation, both under model and actual flow conditions, significant water quality deterioration was observed over time. Additionally, relatively small water volume to large cast iron surface area allowed monitoring in the model system the corrosion-induced phenomena, impossible to observe in standard studies on the actual pipe sections. The increase in pH as well as decrease in conductivity, alkalinity and in calcium and magnesium content were observed in the model system with the increasing stagnation time. Under actual flow conditions these parameters have not changed or changed only to a small extent following long stagnation periods.

Keywords: Water distribution network, corrosion, cast iron, water quality, dynamic model.