Characterization of corrosion deposits in water supply pipes using scanning electron microscopy

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Corrosion deposits play an important role in modifying water quality in drinking water distribution systems. This paper presents results of study of deposits found in water distribution system in Kraków city, Poland. Specimens of deposits were investigated by SEM and EDS techniques. The analysis of corroded iron and steel old water pipelines made evident that, on the corrosion scale surface there form often large spherical particles of undefined type and origin. It was found, that those particles contain mainly iron and oxygen, but unlike the morphology of the main incrustation ingredients reported in a literature, they appear not compact-like, but "empty" shell-like. Further studies are needed to understand the reason and mechanism for spheroids growth.

Keywords: water supply system; iron pipes; steel pipes; scanning electron microscopy; particles size distribution