

Biocorrosion in drinking water pipes

Pizarro, G. E., & Vargas, I. T. (2016). Biocorrosion in drinking water pipes. *Water Science and Technology: Water Supply*, 16(4), 881-887. <10.2166/ws.2016.018> Accessed 26 Nov 2020.

Abstract

Copper is widely used in drinking water distribution systems due to its relatively low cost and favorable mechanical properties. However, copper corrosion may generate copper concentrations exceeding the thresholds prescribed by international drinking water standards. In-situ measurements performed in an actual system found that the copper mass released under flowing water conditions (pipe flushing) was greater than the copper mass release estimated considering only the mass of copper in the pipe's bulk water before the tap is opened. This work presents in-situ and laboratory results of copper release into the water and its dependence on biofilm structure, solid-liquid interface properties, and the pipe flow regime (laminar vs. transition flow). The results of this work highlight the necessity to incorporate the hydrodynamic effects in the analysis of corrosion and corrosion by-products release into drinking water piping systems. Initial modeling efforts are also presented..