DWRG
DRINKING WATER RESEARCH GROUP

Working together for innovation in drinking water quality, treatment, and distribution

Balancing Disinfection By-Product Minimization and Corrosion Control

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Collaborators:
City of Ottawa (ON)
Region of Waterloo (ON)

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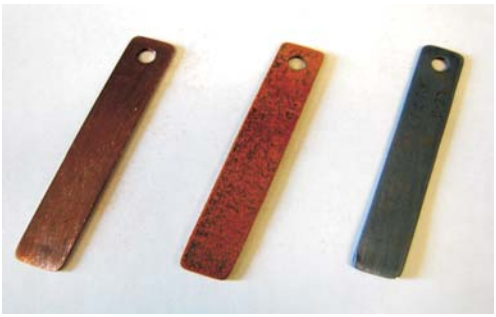
To remain in compliance with current and future regulations concerning trihalomethanes (THMs) and/or haloacetic acids (HAAs), many utilities have switched from free chlorine to chloramines for secondary disinfection. Unfortunately, chloramines have recently been found to increase corrosion rates and iron release in cast iron and ductile iron pipes. Phosphate-based corrosion inhibitors are likely to be critical in suppressing the impact of chloramines on plumbing fixtures, however, relatively little is known concerning the ultimate effects on the formation of disinfection by-products (DBPs) such as nitrosamines.

This research investigates disinfection practices that are known to result in reduced concentrations of DBPs in conjunction with alternative corrosion control strategies, and evaluates the potential impacts to finished water quality and distribution system infrastructure. In particular, emphasis is placed on the use of chloramines in the distribution system as a mechanism to mitigate the formation of HAAs. The formation of other DBPs (e.g., nitrosamines) and the release of lead from service connections are also being monitored in these studies.

The overall goal of this research is to evaluate and develop cost-effective strategies for systems that are faced with the challenge of meeting new regulations for drinking water, recognizing that a decision at the plant can have unintended consequences during distribution.



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