

The effect of disinfectants on the properties of water piping material

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The behaviour of metals in contact with drinking water is dependant on different exposure conditions: type of drinking water, the temperature of drinking water, flow, the presence of water softening chemicals etc. In water treatment process also different chemicals are used for disinfection of water system, this can contain high concentration for rare chemical disinfections and lower concentrations for continuous disinfections.

In the present study, the two disinfectants will be studied at high and low concentrations at different temperatures, those that resemble cold water distribution and hot water distribution. Different materials that are used in drinking water distribution will be tested. The tested materials will be stainless steel, galvanized steel, copper and brass.

Electrochemical properties of different materials will be studied by the use of different electrochemical techniques: electrochemical impedance spectroscopy and potentiodynamic polarization scans.

The effect of type and concentration of disinfectants on corrosion properties of materials in contact with drinking water will be studied and the type of corrosion attack will be spectroscopically (visual, SEM/EDS and Raman analysis) investigated as well.