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Characterization of Integrated Chloride and Chlorine Sensor

David W. Greve

Professor, Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh,
PA

Jeanne M. VanBriesen

Assistant Professor, Civil and Environmental Engineering, Carnegie Mellon University,
Pittsburgh, PA

Irving J. Oppenheim

Professor, Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh,
PA

Abstract

Previously we designed and fabricated a CMOS-based chip-scale sensor for chloride concentration in concrete. In this project will complete characterization of the sensor stability and we will evaluate the potential of the sensor in a new application, chlorine concentration determination in municipal water systems. This is an important application as water systems must chlorinate water in order to control disease-causing micro-organisms. Safety requires a sufficiently high residual chlorine concentration throughout the system, concentration at particular locations depends in a complex way on the systems topology, consumption rates, etc. At present suitable sensors do not exist, and an inexpensive, long-lived sensor would make it possible to determine the actual concentrations throughout the system, resulting in improved safety. It will also be possible to use less added chlorine, leading to improved taste and fewer reaction by-products.