

COMBATING CORROSION WITH CHEM-AQUA

Water and wastewater system corrosion is costly. In fact, system corrosion costs are estimated to exceed \$50 billion annually in the United States. Corrosion reduces system life, increases maintenance costs, results in premature equipment failure, and produces deposits that impede water flow and foul heat exchange surfaces, while reducing overall water system efficiency.

CORROSION CATEGORIES

GENERALIZED CORROSION

Proceeds uniformly and typically results in system fouling.



LOCALIZED CORROSION

Pitting, galvanic, under-deposit, and microbiological corrosion leading to rapid metal perforation and, ultimately, system failure.



CORROSION TYPES



PITTING (LOCALIZED)

is generally promoted by low velocity, stagnant conditions and corrosive ions (oxygen, chlorides, sulfates, etc.), affecting only partial, isolated areas of metal surfaces. Highly destructive and difficult to predict, process self-sustains as the pit solution increases in corrosivity.



UNDER-DEPOSIT (LOCALIZED-AKA CREVICE CORROSION)

occurs within crevices or shielded areas, typically to alloys reliant upon protective oxide film (stainless steel, copper, aluminum). Solutions under deposits become highly-concentrated and corrosive.



GALVANIC (LOCALIZED)

occurs when two dissimilar metals touch while immersed in conductive solution. The galvanic potential difference in materials reacts as a battery with the deteriorating anode protecting the cathode; the greater the difference, the faster the reaction progress.



EROSION (NON-CATEGORIZED)

typically affects soft metals and those reliant upon a protective passive layer. Without protection, corrosion, combined with fluid-flow physical abrasion, attacks exposed metal surfaces.



TUBERCULATION

is dependent upon water chemistry, dissolved oxygen concentration, temperature, flow, and corrosion rates, growing internally with metal loss and externally as corrosion by-products build up. In the absence of MIC, corrosion results in broad, irregular depressions beneath tubercles deposits.



MICROBIOLOGICALLY INFLUENCED CORROSION (MIC)

occurs when metabolic by-products of bacterial growth attack or react with metal, often contributing to tuberculation and other corrosion.

CHEM-AQUA, EXPERTS IN COMBATTING CORROSION

Recognizing the various types of corrosion takes specialized knowledge. Knowing how to treat each type takes expertise. Chem-Aqua has the knowledge and expertise to help safeguard important water systems. Chem-Aqua treatment strategies include a comprehensive roster of products, equipment, and services to protect systems from corrosion.

Contact Chem-Aqua today to learn how we can help you manage your water treatment challenges.