New Inhibitor Technology Solves Difficult Corrosion Problem in Process Cooling Tower System

Problem
An industrial manufacturing complex located in the Southeastern United States was experiencing severe corrosion in the process cooling tower system for the fiber baking furnaces. Cooling water is circulated through copper lines directly mounted on the walls of the furnaces, which are typically only operated 12 hours per day.

Analysis
The makeup water is very corrosive with very low hardness and alkalinity levels. The cooling tower system has a very long half-life due to the relatively low evaporation rate and large system volume. The cycles of concentration are kept low to prevent stagnation problems associated with the extremely long half-life. With an LSI of -1.0, the tower water is also very corrosive.

Legacy water treatment program employed an industry standard stabilized phosphate corrosion inhibitor. Supplemental copper inhibitor was required due to large amount of copper piping. The use of zinc and other heavy metals was prohibited by environmental regulations. The corrosion rates were over 4.0 MPY.

Solution
A new, patent pending inhibitor product undergoing field trials seemed an ideal solution. CHEM-AQUA 31955 was specifically developed to provide effective corrosion control in low LSI waters without using inorganic phosphate or zinc.

A start up dosage of CHEM-AQUA 31955 was added to the system with additional product fed to maintain 100 – 200 ppm product. Corrosion coupon and instantaneous corrosion rate measurements confirmed good corrosion control throughout the trial.

CHEM-AQUA 31955 provided better protection with less testing. The corrosion rates never looked better!