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(54) Title: METHOD OF MINIMIZING CORROSION, SCALE, AND WATER CONSUMPTION IN COOLING TOWER SYSTEMS

(57) Abstract: This invention is an improved process for operation of evaporative recirculating cooling systems. In addition to reducing the scaling and corrosive tendencies of the water, the method eliminates or reduces discharge from the system without creating any localized corrosive or scaling conditions as a result of the treatment process. The described measurement and control system generally comprises an array of measurements, a means of implementing control logic, and an array of control actions including activating an ion exchange device to treat makeup water. The measurements can include of physical measurements of flow rates, chemical measurements of water composition, and performance-related metrics such as water corrosiveness or scaling tendency. Preferably, the measurements include one or more of pH, conductivity, hardness, alkalinity, corrosiveness, scaling tendency, treatment additive dosage level, and treatment additive residual of the makeup, treated makeup, and recirculating water.



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