

عنوان مقاله:

Technical and Economic feasibility of using Ozone in wet Cooling towers to reduce Water, Chemicals and Energy consumption at the scale of pilot plant

محل انتشار:

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خلاصه مقاله:

One of the most important problems in wet cooling tower system is high consumption of make-up water. In RCWs several organic and mineral additives must be used for decreasing biological, corrosion and scale formation challenges. Conventional cooling tower treatment technologies include treatment with chemical to remove microorganism, scales and blow-down of water to remove impurities. High water and chemical additive consumption result in high economical costs in RCWs. In this work a complete cooling system was made that was equipped by an industrial exchanger and measuring corrosion system. Ozone treatment for cooling tower was compared by conventional methods from economical and industrial point of view. An ozone generator with ۲۰ gr/hr (ozone) capacity was used for water treatment and disinfection. A comparative study was done between ozone treatment method and chlorination method with decrease in inhibitor material consumption or without these materials in two periods of ۴۵ days. Blow down measuring showed that ۳۳% decrease in water consumption, ۶۰% decrease in corrosion inhibitors, ۶۰% decrease in scale inhibitors and biocides and residual chlorine remained completely. Exchanger's energy efficiency increased ۱۰% by complete removing of biofilm and turbidity reduction. For many cooling water systems ozone provides an efficient treatment solution which is easier to manage, provides on-going cost savings and supports environmental improvement objectives.

کلمات کلیدی:

Ozone, Cooling tower, Chemicals and Energy consumption, Make up

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