

Catalytic wet peroxide oxidation of dyehouse effluents with Cu/Al₂O₃ and copper plate

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The effluents from the textile dyeing industries impose serious environmental problems because of their color and their high chemical oxygen demand (COD). The discharge of highly colored waste is not only aesthetically displeasing, but it also interferes with the transmission of light and upsets the biological processes which may then cause the direct destruction of aquatic communities present in the receiving stream. Catalytic wet oxidation with H₂O₂ using Cu/Al₂O₃ and copper plate was employed for the treatment of the dark black reddish dyehouse effluents. The removal efficiency of both TOC and color was strongly related to the consumption of H₂O₂ and formation of hydroxyl radical. During the continuous operation of the wet oxidation the Cu/ Al₂O₃ catalysts lost their activity significantly. The activity loss was proved to be due to the leaching out of copper component from the catalysts. The copper plate, however, could oxidize more than 95% conversion of TOC and color of dyehouse effluent, and was stable against copper leaching.