

Effects of selected parameters on decolorization and decomposition of Acid Orange

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摘要.

Abstract

This study investigated the effects of controlling parameters, temperature, pH, ozone dose, and initial Acid Orange 6 (AO6) concentration on the degradation of target compounds. Decolorization and AO6 reduction were completed within 40 min of ozonation time for all examined cases. Significant amounts of total organic carbon (TOC) still remained by the end of experiments, suggesting that ozone could not oxidize all organic molecules to CO₂. Major findings from this study were as follow: (1) the decolorization of AO 6 dye was affected by ozone dose and pH; however, the effects of temperature contribution on apparent rate constant was limited. (2) TOC removal was affected by temperature significantly, but the affects of pH and ozone dose were limited. (3) The highest η level was about 0.70 as η TOC was about 0.75, and the increment of η was accelerated as η TOC > 0.4. (4) The η TOC was proportional to the 7.64 power of exponential term. (5) NO and NO₂ were found in off-gas that might provide the explanation of unbalance of nitrogen mass.