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REMOVAL OF DYES FROM AQUEOUS SOLUTIONS AND WASTEWATERS BY SORBENT MATERIALS

E. VOUDRIAS[1], K. FYTIANOS[2], E. BIZANI[2]

[1] Dept. of Environmental Engineering, Democritus University of Thrace, 671 00 Xanthi, Greece
[2] Environmental Pollution Control Laboratory, Dept. of Chemistry, Aristotle University of Thessaloniki 540 06 Thessaloniki, Greece

ABSTRACT

The ability of activated carbon and different low-cost by-products and waste material as adsorbents to remove various reactive dyes from aqueous solutions and wastewaters was investigated. All aqueous dye solutions contained 2000 mg/L NaCl, to mimic real dye wastewater. Batch kinetic and isotherm experiments were conducted to determine the sorption-desorption behavior of the examined dyes from aqueous solutions and wastewaters by different adsorbents, including activated carbon, fly ash, bentonite and bleaching earth. The results from the aqueous solutions indicate that the form of the isotherm equation is not necessarily unique for best description of both sorption and desorption data. The values of the isotherm parameters are not the same, indicating a significant hysteresis effect.