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Title

Dyeing of chitin/cellulose composite fiber with the direct dye based on the metal - phthalocyanine

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Abstract

The dyeing behaviors of metal-phthalocyanine (Direct dye type, CPS) onto the chitin/ cellulose composite fiber (CR fiber) have been studied. The CR fibers used were CR35, CR20 and CR10 containing 35%, 20% 10% of chitin, respectively. The dyeing was reached to the equilibrium at about 11 days in CR 10 (yarn sample) – CPS system. The dye uptake increased as the temperature became higher. This behavior is different from that in the cellulose – direct dye system. Also, the dye uptake increased with the decrease of the dye bath pH. This means that the protonated amino groups in the chitin component of the composite fiber greatly contributed to the dye adsorption. Furthermore, this was demonstrated by the following facts. CR fibers adsorbed CPS more than rayon and the greater the content of amino group in the substrate, the greater the dye uptake at equilibrium: CR35》CR20〉CR10》rayon.

Key words

chitin/cellulose composite fiber, metal-phthalocyanine dye, dyeing