

## عنوان مقاله:

Optimisation Of The Coagulation-Flocculation Of Reactive Dye Wastewater Using Novel Inorganic-Organic Hybrid Polymer

## محل انتشار:

فصلنامه انرژی و محیط زیست ایران، دوره 7، شماره 1 (سال: 1394)

تعداد صفحات اصل مقاله: 8

## نویسندگان:

Claire Xin-Hui Su - *School of Industrial Technology, Universiti Sains Malaysia, 11800, Penang, Malaysia*

Tjoon Tow Teng - *School of Industrial Technology, Universiti Sains Malaysia, 11800, Penang, Malaysia*

Norhashimah Morad - *School of Industrial Technology, Universiti Sains Malaysia, 11800, Penang, Malaysia*

Mohd Rafatullah - *School of Industrial Technology, Universiti Sains Malaysia, 11800, Penang, Malaysia*

## خلاصه مقاله:

A novel inorganic-organic hybrid polymer of magnesium chloride-polyethylene oxide (MgCl<sub>2</sub>-PEO) was prepared, characterised and applied in the coagulation-flocculation of a reactive dye, Cibacron Blue F3GA (RCB). The hybrid polymers were prepared in various ratios and their conductivity and viscosities were measured. For the application in the coagulation-flocculation of RCB, the hybrid polymer of 90% MgCl<sub>2</sub>:10% PEO ratio was selected as it showed the highest conductivity and lowest viscosity. The factors that affect coagulation-flocculation of RCB, namely initial dye concentration, initial pH, agitation speed, agitation time and hybrid polymer dosage, were studied using fractional factorial design and response surface methodology (RSM). The process was also optimised, with respect to colour removal and chemical oxygen demand (COD) reduction efficiency. The five factors studied showed significant effects toward the colour removal and COD reduction of RCB. The process was optimum at initial dye concentration of 173 mg/L, pH 11.13, agitation speed of 150 rpm, agitation time of 6 minutes and hybrid polymer dosage of 1020 mg/L. Under these optimum conditions, maximum colour removal of 99.76% and COD reduction of 92.09%, were achieved

## کلمات کلیدی:

(Cibacron blue, magnesium chloride, polyethylene oxide, response surface methodology (RSM)

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/487721>

