

# COLOR REMOVAL BY CHEMICAL COAGULATION PROCESS

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## ABSTRACT

TWO INORGANIC COAGULANTS ALUM ( $Al_2(SO_4)_3 \cdot 18H_2O$ ) AND PAC (POLYALUMINIUM CHLORIDE), AND A CATIONIC POLYELECTROLYTE (POLY DIALLYLDIMETHYLAMMONIUM CHLORIDE) OF THREE DIFFERENT MOLECULAR WEIGHTS ARE USED TO EXPLORE THE COLOR REMOVAL OF THREE AQUEOUS SOLUTIONS CONTAINING DYE REACTIVE RED 141, ACID BLUE 62, AND DIRECT YELLOW 86 RESPECTIVELY. BASED ON THE RESULTS OF THIS STUDY, THE FOLLOWING CAN BE CONCLUDED: 1. THE COLOR REMOVAL EFFICIENCY BY THE CATIONIC POLYELECTROLYTES. 2. PAC IS MORE EFFECTIVE TO REMOVE COLOR THAN ALUM. 3. THE MORE THE NUMBER OF SULFONIC GROUP OF THE DYES, THE BETTER THE COLOR REMOVAL EFFICIENCY. 4. THE RESTABILIZATION INDUCED BY EXCESS CATIONIC POLYELECTROLYTES DOSE CAN RESULT IN THE NARROW RANGE OF OPTIMUM DOSAGE. HOWEVER THE DOSAGE IS LESS IN COMPARISON WITH INORGANIC COAGULANTS. 5. THE REMOVAL EFFICIENCY IS REDUCED SIGNIFICANTLY AT HIGH PH FOR THE CATIONIC POLYELECTROLYTES. 6. THE CATIONIC POLYELECTROLYTES CAN BE ADDED WITH THE INORGANIC COAGULANTS IN SEQUENCE TO REMOVE DYE COLOR IN WATER, AND THE SYNERGY CAN BE EFFECT.

Keywords : CHEMICAL COAGULATION, COAGULANT, DYE WASTEWATER, CATIONIC POLYELECTROLYTE

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