

Evaluation of several commercial synthetic polymers as flocculant aids for removal of highly concentrated C.I. Acid Black 210 dye

Abstract

The removal of C.I. Acid Black 210 dye from highly concentrated solutions was studied using a coagulation/flocculation process. Aluminium sulphate was used as a primary coagulant and five commercial polymers were used as flocculant aids. The five commercial polymers were ACCEPTA 2058 (poly-diallyl-dimethyl ammonium chloride), ACCEPTA 2047 (high molecular mass (MM) anionic polyacrylamide), ACCEPTA 2111 (high MM cationic polyacrylamide), ACCEPTA 2105 (Low-medium MM cationic polyacrylamide) and ACCEPTA 2037 (Composite of high MM cationic polyacrylamide-inorganic salt(s)). The five polymers behaved differently and they showed maximum colour removal increment in the order: ACCEPTA 2058 > ACCEPTA 2037 > ACCEPTA 2111 \approx ACCEPTA 2047 > ACCEPTA 2105. Results also showed that the aluminium sulphate is important as primary coagulant and settling time has significant effect on the dye removal.