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论文

三元共聚阳离子聚丙烯酰胺的合成及性能评价

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摘要：

以丙烯酰胺(AM)为分子骨架,丙烯酰氧乙基三甲基氯化铵(DAC)和二烯丙基二甲基氯化铵(DMDAAC)为阳离子单体,通过水溶液共聚合的方法,合成了一种新型高分子材料——阳离子絮凝剂P(AM-DAC-DMDAAC). 确定了反应的最佳合成条件:单体质量分数30%,引发温度12℃,pH值为5.0,阳离子单体含量25%,引发剂AM-01和$K_2S_2O_8$质量分数分别为0.03%和0.003%. 用粘度法测定了聚合物的相对分子质量,运用红外光谱和核磁共振对聚合物结构进行分析,并用合成的絮凝剂对城市生活污水进行絮凝试验,测定其絮凝性能.

关键词： 丙烯酰胺;高分子材料;阳离子絮凝剂;丙烯酰氧乙基三甲基氯化铵;二烯丙基二甲基氯化铵

Synthesis and evaluation of ternary copolymerization cationic polyacrylamide

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Abstract:

A new polymer materials——cationic flocculant P(AM-DAC-DMDAAC) was synthesized by aqueous solution polymerization using acrylamide (AM) as the molecular backbone, acryloyloxyethyl trimethyl ammonium chloride (DAC) and dimethyl diallyl ammonium chloride (DMDAAC) as the cation group. The obtained optimum reaction conditions were as follows: mass fraction of monomer 30%, initiator temperature 12?℃,pH 5.0, cationic monomer concentration 25%, initiator AM-01 0.03% and $K_2S_2O_8$0.003%. The molecular weights of polymers were measured by the viscosity method, and the structure of the polymers were characterized by the infrared absorption spectrum and nuclear magnetic resonance. The polymers'capability of flocculating performance was investigated in waste water.

Keywords: acrylamide; polymer materials; cationic flocculate; acryloyloxyethyl trimethyl ammonium chloride; dimethyl diallyl ammonium chloride

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