

材料化学工程与纳米技术

## 分散聚合法合成纳米有机阳离子聚合物PDMDAAC-AM

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**摘要** 以丙烯酰胺(AM)、阳离子单体二甲基二烯丙基氯化铵(DMDAAC)为原料,用分散聚合法合成了AM/DMDAAC阳离子共聚物。用IR谱图考察了在不同的分散体系中合成的共聚物,表明乙醇-H<sub>2</sub>O分散体系为3种体系中最优的分散聚合体系;用TEM、粒度测定法等多种现代分析仪器和方法对乙醇-H<sub>2</sub>O分散体系合成的PDMDAAC-AM进行了分析表征。实验结果表明,乙醇-H<sub>2</sub>O分散体系合成的阳离子共聚物PDMDAAC-AM的粒度在纳米范围内,而且由于分散聚合体系本身是个乳状液体系,有利于反应的热交换,所以采用分散聚合法合理的解决了聚合反应中的散热问题,体现了分散聚合法的特点。

**关键词**

[分散聚合](#) [二甲基二烯丙基氯化铵](#) [丙烯酰胺](#) [阳离子](#)

分类号

## Dispersion polymerization of nano-organic cationic polymer PDMDAAC-AM

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### Abstract

Cationic copolymer acrylamide-dimethyldiallylammonium chloride [P(AM/DMDAAC)] was synthesized from acrylamide (AM) and dimethyldiallylammonium chloride (DMDAAC) by dispersion polymerization. The structures of polymers synthesized in different systems of dispersion were determined with infrared spectroscopy. The results showed that ethanol-H<sub>2</sub>O was the best system of dispersion. The characteristics of PDMDAAC-AM were studied by means of various instrumental analysis techniques, including transmission electron microscope (TEM) and Zetasizer 3000HS<sub>A</sub>. The results showed that the particle size of cationic PDMDAAC-AM synthesized in the ethanol-H<sub>2</sub>O system of dispersion was within the range of nanometer, and the dispersion polymerization in the emulsion state was helpful to dissipation of reaction heat.

### Key words

[dispersion polymerization](#) [dimethyldiallylammonium chloride](#) [acrylamide](#) [cation](#)

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