

RESEARCH NOTES

微波溶剂法合成天冬氨酸-谷氨酸共聚物研究

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 Polyaspartic acid (PASP) is suitable for the inhibition of scale deposition from water. To enhance its inhibition efficiency, PASP was modified by reacting aspartic acid (Asp) with glutamic acid (Glu) to provide Asp-Glu copolymer under microwave irradiation. The influence of reaction parameters on conversion, molecular weight and inhibition of CaCO₃ precipitation was investigated. Infra-red. (IR), ¹H nuclear magnetic resonance (¹H NMR) and ¹³C nuclear magnetic resonance (¹³C NMR) spectroscopies were used to characterize the copolymer. The results show that copolymerization of aspartic acid and glutamic acid is catalyzed by a small amount of phosphorous acid (H₃PO₄) in solvent, the product conversion is 98.05% under the following conditions: the molar ratio of glutamic acid to reactant [Glu/(Asp+Glu)] is 0.3 and that of catalyst (Cat) to reactant [Cat/(Glu+Asp)] is 0.05 (0.65ml H₃PO₄), the volume of solvent dimethylformamide is 16ml, the microwave power used is 720W and the reaction for 3 min. The weight average molecular weight of copolymer synthesized under these conditions is 2709 and the inhibition rate for CaCO₃ is 97.75%.

关键词 [microwave irradiation](#) [aspartic acid](#) [glutamic acid](#) [copolymer](#) [conversion ratio](#) [scale inhibition](#)

分类号

DOI:

Microwave-assisted synthesis of modified polyaspartic acid in solvent

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Received Revised Online Accepted

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Key words [microwave irradiation](#); [aspartic acid](#); [glutamic acid](#); [copolymer](#); [conversion ratio](#); [scale inhibition](#)

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