

材料化学工程与纳米技术

致孔法制备新型CMCTS-g-PAA大孔高吸水树脂

陈煜, 刘云飞, 唐焕林, 颜荣华, 谭惠民

北京理工大学材料科学与工程学院

收稿日期 2007-7-14 修回日期 2007-12-7 网络版发布日期 2008-3-11 接受日期

摘要 在过硫酸铵的引发下,使丙烯酸在羧甲基壳聚糖的分子链上接枝聚合,以 N,N' -亚甲基双丙烯酰胺为交联剂,并加入 NaHCO_3 为致孔剂,制得具有大孔结构的羧甲基壳聚糖接枝聚丙烯酸(CMCTS-g-PAA)高吸水性树脂。采用Voigt模型成功地对树脂的溶胀动力学进行了模拟,并确定了模型中的各参数在高吸水树脂溶胀过程中的意义。通过溶胀动力学及SEM的表征,研究讨论了致孔剂的加入量,致孔剂加入时间与聚合物的凝胶过程的配合等因素对所合成树脂的表面形貌和吸水速率的影响。

关键词

[高吸水性树脂](#) [致孔法](#) [大孔](#) [溶胀动力学](#)

分类号

Preparation of CMCTS-g-PAA macroporous superabsorbent polymer by foaming method

CHEN Yu, LIU Yunfei, TANG Huanlin, YAN Ronghua, TAN Huimin

School of Material Science and Engineering, Beijing Institute of Technology

Abstract

With initiator of ammonium persulfate, acrylic acid was graft polymerized on the chain of carboxymethyl chitosan. After crosslinked with N,N' -methylene diacrylamide and gas foamed with NaHCO_3 , a kind of novel superabsorbent polymer with macroporous structure, CMCTS-g-PAA, was prepared. The Voigt model was used to characterize the swelling kinetics of the polymer. The significance of the parameters in the Voigt model in the process of swelling was explained. By studying the swelling kinetics and characterizing the polymer with SEM, the effects of the amount of NaHCO_3 , matching of adding time of NaHCO_3 and gelation time on the swelling properties and surface morphology of the polymer were discussed.

Key words

[superabsorbent polymer](#) [foaming method](#) [macroporous](#) [swelling kinetics](#)

DOI:

通讯作者 陈煜 bityuchen@bit.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(1524KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“高吸水性树脂”的 相关文章](#)
- ▶ [本文作者相关文章](#)

- [陈煜](#)
- [刘云飞](#)
- [唐焕林](#)
- [颜荣华](#)
- [谭惠民](#)