SELECTED ABSTRACTS*

Polym.Int. 42, No.1, Jan.1997, p.45-56

HYDROPHILIC SPONGES BASED ON 2-HYDROXYETHYL METHACRYLATE(HEMA). III. EFFECT OF INCORPORATING A HYDROPHILIC CROSSLINKING AGENT ON THE EQUILIBRIUM WATER CONTENT AND PORE STRUCTURE

Clayton A B; Chirila T V; Dalton P D

Lions Eye Institute; Curtin, University of Technology

The effect of using a hydrophilic crosslinking agent (divinyl glycol(DVG)) on HEMA sponge swelling and pore morphology was evaluated. Concentrations of crosslinking agent, redox initiators and HEMA (75-90 wt %) in the initial aqueous monomer mixture was varied. Anomalous sponge swelling behaviour, together with the formation of non-uniform stratified sponges, was rationalised in terms of the assumed disparate free radical reactivities of DVG and HEMA. Environmental SEM indicated that the stratified sponges did not exhibit suitable porosity for biomedical use.

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Polym.Engng.Sci. 36, No.21, Mid-Nov.1996, p.2645-62

EFFECT OF THE CRYSTALLINITY AND MORPHOLOGY ON THE MICROCELLULAR FOAM STRUCTURE OF SEMICRYSTALLINE POLYMERS

Doroudiani S; Park C B; Kortschot M T

Toronto, University

The effects of the crystallinity and morphology of semicrystalline polymers (HDPE, polybutylene, PP, PETP) on microcellular foam processing and on the cellular structure of products were investigated. Polymer specimens with various crystallinities and morphologies were first prepared by varying the cooling rate of the polymer melt. The solubility and diffusivity of the blowing agent in and through specimens were then studied. The specimens with differing crystallinities and morphologies were foamed and their cellular structures were compared. The experimental results agreed with the theoretical predictions, indicating that the crystallinity and morphology of semicrystalline polymers exerted a strong influence on the foam processing and structure of the product.

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Table of Contents Selected Abstracts On Structural Applications Of Plastics

- 1. Understanding the eBook Selected Abstracts On Structural Applications Of Plastics
 - The Rise of Digital Reading Selected Abstracts On Structural Applications Of Plastics
 - Advantages of eBooks Over Traditional Books
- 2. Identifying Selected Abstracts On Structural Applications Of Plastics
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
- 3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Selected Abstracts On Structural Applications Of Plastics
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Selected Abstracts On Structural Applications Of Plastics
 - Personalized Recommendations
 - Selected Abstracts On Structural Applications Of Plastics User Reviews and Ratings
 - Selected Abstracts On Structural Applications Of Plastics and Bestseller Lists
- 5. Accessing Selected Abstracts On Structural Applications Of Plastics Free and Paid eBooks
 - Selected Abstracts On Structural Applications Of Plastics Public Domain eBooks
 - Selected Abstracts On Structural Applications Of Plastics eBook Subscription Services
 - Selected Abstracts On Structural Applications Of Plastics Budget-Friendly Options

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 - o ePub, PDF, MOBI, and More
 - Selected Abstracts On Structural Applications Of Plastics Compatibility with Devices
 - Selected Abstracts On Structural Applications Of Plastics Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Selected Abstracts On Structural Applications Of Plastics
 - Highlighting and Note-Taking Selected Abstracts On Structural Applications Of Plastics
 - Interactive Elements Selected Abstracts On Structural Applications Of Plastics
- 8. Staying Engaged with Selected Abstracts On Structural Applications Of Plastics
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Selected Abstracts On Structural Applications Of Plastics
- 9. Balancing eBooks and Physical Books Selected Abstracts On Structural Applications Of Plastics
 - $\circ\,$ Benefits of a Digital Library
 - o Creating a Diverse Reading Collection Selected Abstracts On Structural Applications Of Plastics
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Selected Abstracts On Structural Applications Of Plastics
 - Setting Reading Goals Selected Abstracts On Structural Applications Of Plastics
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Selected Abstracts On Structural Applications Of Plastics
 - Fact-Checking eBook Content of Selected Abstracts On Structural Applications Of Plastics
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements

• Interactive and Gamified eBooks

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