

图书基本信息

书名：<<高分子膜分离材料的表面工程Surface Engineering of Polymer Membranes>>

13位ISBN编号：9787308061698

10位ISBN编号：7308061698

出版时间：2008-10

出版时间：浙江大学出版社

作者：徐志康，黄小军，万灵书 著

页数：333

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

内容概要

Surface Engineering of Polymer Membranes covers the processes that modify membrane surfaces to improve their in-service performance, meaning, to confer surface properties which are different from the bulk properties. Purposes may be to minimize fouling, modulate hydrophilicity/hydrophobicity; enhance biocompatibility, create diffusion barriers, provide functionalities, mimic biomembranes, fabricate nanostructures, etc. First, the basics of surface engineering of polymer membranes are covered. Then topics such as surface modification by graft polymerization and macromolecule immobilization, biomimetic surfaces, enzyme immobilization, molecular recognition, and nanostructured surfaces are discussed. This book provides a unique synthesis of the knowledge of the role of surface chemistry and physics in membrane science.

作者简介

Dr. Zhikang Xu of the Institute of Polymer Science of Zhejiang University has eight Chinese patents and in 2006 was honored as a Distinguished Young Scholar by the National Natural Science Foundation of China (NNSFC).

书籍目录

1 Surface Engineering of Polymer Membranes: An Introduction 2 Techniques for Membrane Surface Characterization 2.1 General Principles 2.1.1 Sample Preparation 2.1.2 Where is the Surface? 2.1.3 Is it Really the Surface? 2.1.4 Invasive or Non-invasive 2.2 Chemical Composition of Membrane Surfaces 2.2.1 Attenuated Total Reflectance Fourier Transform Infrared (ATR-FTIR) Spectroscopy 2.2.2 X-ray Photoelectron Spectroscopy (XPS) 2.2.3 Static Secondary Ion Mass Spectrometry (SSIMS) 2.2.4 Energy Dispersive X-ray Spectroscopy (EDS) 2.3 Morphologies and Microstructures of Membrane Surfaces 2.3.1 Surface Morphology of Membran 2.3.2 Introduction to Microscopy 2.3.3 Basic Conceptions in Microscopy 2.3.4 Optical Microscopy 2.3.5 Laser Confocal Scanning Microscopy (LCSM) 2.3.6 Scanning Electron Microscope 2.3.7 Environmental Scanning Electron Microscopy 2.3.8 Atomic Force Microscopy 2.4 Wettability of Membrane Surfaces 2.4.1 Wettability and Surface Properties of Membrane 2.4.2 Principle of Contact Angle 2.4.3 Methods for Contact Angle Measurement 2.4.4 Contact Angle Hysteresis 2.4.5 Factors Influencing the Contact Angle on Membrane Surfaces 2.5 Characterization of Biocompatibility of Membrane Surfaces 2.5.1 Non-specific Adsorption of Proteins 2.5.2 Interactions between Blood and Membrane 2.5.3 Interactions Between Cells and Membrane References3 Functionalization Methods for Membrane Surfaces 3.1 Introduction 3.2 Functionalization of Polymeric Membranes by Surface Modification 3.2.1 Coating 3.2.2 Self-assembly 3.2.3 Chemical Treatment 3.2.4 Plasma Treatment 3.2.5 Graft Polymerization 3.3 Functionalization of Polymeric Membrane by Molecular Imprinting 3.3.1 Formation of Imprinting Sites by Surface Photografting 3.3.2 Formation of Imprinting Sites by Surface Deposition 3.3.3 Formation of Imprinting Sites by Emulsion Polymerization on the Surface 3.4 Functionalization of Polymeric Membrane by Enzyme Immobilization 3.4.1 Enzyme Immobilization by Physical Adsorption 3.4.2 Enzyme Immobilization by Chemical Binding 3.4.3 Enzyme Immobilization by Entrapment 3.4.4 Other Methods for Enzyme Immobilization 3.5 Conclusion References4 Surface Modification by Graft Polymerization 4.1 Introduction 4.2 Graft Polymerization on Membranes 4.2.1 Surface Modification by Chemical Graft Polymerization 4.2.2 Surface Modification by Plasma-induced Graft Polymerization 4.2.3 Surface Modification by UV-induced Graft Polymerization 4.2.4 Surface Modification by High-energy Radiation- initiated Graft 4.2.5 Other Methods 4.3 Applications of Surface Modified Membranes 4.3.1 Environmental Stimuli-responsive Gating Membranes5 Surface Modification by Macromolecule Immobilization6 Membrane with Phospholipid Analogous Surfaces7 Membranes with Glycosylated Surface8 Molecularly Imprinted Membranes9 Membrane with Biocatalytic Surface10 Nanofibrous Membrane with Functionalized SurfaceIndex

章节摘录

插图：

编辑推荐

《高分子膜分离材料的表面工程》由机械工业出版社出版。

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>