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Nota di contenuto	<p>Front Cover; Fluorinated Ionomers; Copyright Page; Contents; PDL Fluorocarbon Series Editor's Preface; Preface; Acknowledgements; Chapter 1. Introduction; 1.1 Polymers; 1.2 Physical Shapes; 1.3 References; Chapter 2. History; 2.1 References; Chapter 3. Manufacture; 3.1 Introduction; 3.2 Perfluorinated Ionomers; 3.3 Polymerization; 3.4 Fabrication; 3.5 Hydrolysis and Acid Exchange; 3.6 Finishing and Testing; 3.7 Liquid Compositions; 3.8 Fluorinated Ionomers with Phosphonic or Sulfonyl Imide Functional Groups; 3.9 Partially Fluorinated Ionomers</p> <p>3.10 Composite Materials of Ionomers and Inorganic Oxides</p> <p>3.11 Remanufactured Membranes; 3.12 References; Chapter 4. Properties; 4.1 Properties of the Precursor Polymers; 4.2 Properties of the Ionic Forms; 4.3 Morphology; 4.4 Transport Properties; 4.5 Optical Properties; 4.6 Thermal Properties; 4.7 Stability; 4.8 References; Chapter 5. Applications; 5.1 Electrolysis; 5.2 Sensors and Actuators; 5.3 Dialysis; 5.4 Gas and Vapor Diffusion; 5.5 Protective Clothing; 5.6 Catalysis; 5.7 References; Chapter 6. Fuel Cells and Batteries; 6.1 Introduction; 6.2 Operating Parameters; 6.3 Ionomer Stability</p> <p>6.4 Direct Methanol Fuel Cells (DMFCs)</p> <p>6.5 Manufacture of MEAs; 6.6 References; 6.7 Further Reading; Chapter 7. Commercial Membrane Types; 7.1 Unreinforced Perfluorinated Sulfonic Acid Films; 7.2 Reinforced Perfluorinated Membranes; Chapter 8. Economic Aspects; 8.1 Chlor-Alkali Cells; 8.2 Fuel Cells; 8.3 References; Chapter 9. Experimental Methods; 9.1 Infrared Spectra; 9.2 Hydrolysis, Surface Hydrolysis and Staining; 9.3 Other Reactions of the Precursor Polymer; 9.4 Ion Exchange Equilibrium; 9.5 Determination of EW by Titration or Infrared Analysis; 9.6 Determining Melt Flow</p> <p>9.7 Distinguishing the Precursor Polymer from Various Ionic Forms</p> <p>9.8 Fenton's Test for Oxidative Stability; 9.9 Examination of a Membrane; 9.10 Determining the Permselectivity; 9.11 Measuring Pervaporation Rates; 9.12 Simple Electrolytic Cells; 9.13 References; Chapter 10. Heat Sealing and Repair; 10.1 Reference; Chapter 11. Handling and Storage; 11.1 Handling the Film; 11.2 Pretreatment; 11.3 Installation; Chapter 12. Toxicology, Safety and Disposal; 12.1 Toxicology; 12.2 Safety; 12.3 Disposal; 12.4 References; Appendix A: A Chromic Acid Regeneration System</p> <p>Appendix B: Laboratory Chlor-alkali Cell</p> <p>Appendix C: Solution Cast Nafion Film; Appendix D: Plastic-Based Bipolar Plates; Suppliers and Resources; Glossary and Web Sites; Index; Plastics Design Library</p> <p>Founding Editor: William A. Woishnis</p>
Sommario/riassunto	<p>The author of this unique handbook on fluorinated ionomers is also the inventor of the first commercial product known as Nafion® (DuPont). The book covers partially fluorinated and perfluorinated polymers containing sufficient ionic groups to dominate the transport properties of the polymer. The emphasis of this book is on the practical aspects of working with fluorinated ionomers. It is intended to help the scientist and engineer in the preparation, fabrication, use, and study of these products as well as in the development of new applications and compositions. Extensive coverage has</p>