Characterization of Polymer Blends: Miscibility, Morphology and Interfaces

Sabu Thomas (Editor), Yves Grohens (Editor), P. Jyotishkumar (Editor)

E-Book  978-3-527-64561-9  October 2014  $403.99
Hardcover  978-3-527-33153-6  February 2015  $504.50
O-Book  978-3-527-64560-2  October 2014  Available on Wiley Online Library

DESCRIPTION

Filling the gap for a reference dedicated to the characterization of polymer blends and their micro and nano morphologies, this book provides comprehensive, systematic coverage in a one-stop, two-volume resource for all those working in the field.

Leading researchers from industry and academia, as well as from government and private research institutions around the world summarize recent technical advances in chapters devoted to their individual contributions. In so doing, they examine a wide range of modern characterization techniques, from microscopy and spectroscopy to diffraction, thermal analysis, rheology, mechanical measurements and chromatography. These methods are compared with each other to assist in determining the best solution for both fundamental and applied problems, paying attention to the characterization of nanoscale miscibility and interfaces, both in blends involving copolymers and in immiscible blends. The thermodynamics, miscibility, phase separation, morphology and interfaces in polymer blends are also discussed in light of new insights involving the nanoscopic scale. Finally, the authors detail the processing-morphology-property relationships of polymer blends, as well as the influence of processing on the generation of micro and nano morphologies, and the dependence of these morphologies on the properties of blends. Hot topics such as compatibilization through nanoparticles, miscibility of new biopolymers and nanoscale investigations of interfaces in blends are also addressed.

With its application-oriented approach, handpicked selection of topics and expert contributors, this is an outstanding survey for anyone involved in the field of polymer blends for advanced technologies.
ABOUT THE AUTHOR

Sabu Thomas is a Professor of Polymer Science and Engineering at Mahatma Gandhi University (India). He is a Fellow of the Royal Society of Chemistry and a Fellow of the New York Academy of Sciences. Thomas has published over 350 papers in peer reviewed journals on polymer composites, membrane separation, polymer blends and alloys, and polymer recycling, has an h-index of 33 and has edited six books.

Yves Grohens is head of the Laboratory for Engineering of Materials (LIMATB) located at the University of South Brittany, France. His research interests include interface science in nano and bio-composites as well as confinement applications and (bio)polymer behaviour in model thin films. Grohens has published more than 120 papers in international journals devoted to polymers and surface science.

P. Jyotishkumar is a Senior Research Fellow pursuing a PhD under the supervision of Sabu Thomas in the School of Chemical Sciences, Mahatma Gandi University, India.

To purchase this product, please visit https://www.wiley.com/en-us/9783527645619