



Micro and Nanostructured Epoxy / Rubber Blends

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Epoxy resins are polymers which are extensively used as coating materials due to their outstanding mechanical properties and good handling characteristics. A disadvantage results from their high cross-link density: they are brittle and have very low resistance to crack growth and propagation. This necessitates the toughening of the epoxy matrix without impairing its good thermomechanical properties. The final properties of the polymer depend on their structure. The book focuses on the microstructural aspects in the modification of epoxy resins with low molecular weight liquid rubbers, one of the prime toughening agents commonly employed.

The book follows thoroughly the reactions of elastomer-modified epoxy resins from their liquid stage to the network formation. It gives an in-depth view into the cure reaction, phase separation and the simultaneous development of the morphology. Chapters on ageing, failure analysis and life cycle analysis round out the book.

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Editorial Review

From the Back Cover

Epoxy resins are polymers which are extensively used as coating materials due to their outstanding mechanical properties and good handling characteristics. A disadvantage results from their high cross-link density: they are brittle and have very low resistance to crack growth and propagation. This necessitates the toughening of the epoxy matrix without impairing its good thermomechanical properties. The final properties of the polymer depend on their structure. The book focuses on the microstructural aspects in the modification of epoxy resins with low molecular weight liquid rubbers, one of the prime toughening agents commonly employed.

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About the Author

Sabu Thomas is a Professor and Director of Polymer Science and Engineering at the School of Chemical Sciences, as well as the Director of

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Prof. Thomas has (co-)authored more than 600 research papers in international peer-reviewed journals in the area of polymer composites, nanocomposites, membrane separation, polymer blends and alloys, polymeric scaffolds for tissue engineering and polymer recycling. Prof. Thomas has been involved in a number of books (35 books), both as author and editor. He has been ranked no. 5 in India with regard to the number of publications (listed in the panel of most productive scientists in the country). He received the coveted Sukumar Maithy Award for the best polymer researcher in the country for the year 2008. The h index of Prof. Thomas is 67 and he has more than 17,000 citations. Prof. Thomas has 4 patents to his credit. Recently he has been awarded CRSI and MRSI awards. Prof. Thomas has supervised 64 PhD theses and has delivered more than 200 invited/plenary and key note talks over 30 countries.

Christophe Sinturel received his Masters degree in Organic Chemistry in 1994 and his Ph.D. in Polymer Science in 1998 from the University Blaise Pascal of Clermont-Ferrand (France). He spent one year at the University of Brighton (UK) in 1999 as Postdoctoral Research Associate before being appointed as an associate professor the same year at the University of Orléans (France). He accepted a full-professor position at the University of Orléans in 2010. Christophe is currently conducting research in Orléans at the Centre de Recherche sur la Matière Divisée,

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His current research interests concern polymer blends, nanostructured polymers, polymer nano-composites and block polymers.

He has published 40 publications in various international journals and books, 2 patents and participated in several international conferences.

Raju Thomas is Vice Chancellor of Middle East University FZE, Ras Al Khaimah, UAE. He received his Ph.D. under the supervision of Prof. abu Thomas, Director of International and Interuniversity Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, Kerala, India.

His research works are reflected in his six published research articles in international journals and few articles which are under review status. Also many articles are published in popular journals. He has a wide teaching experience in Chemistry for more than 32 years in Graduate and Postgraduate levels.

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