

Modern polymeric materials for environmental applications : 4th International Seminar Kraków, 1-3 Dec. 2010 : including COST MPO701 workshop "Environmental impact of polymer nanocomposites - from preparation to recycling". Vol. 4, Iss. 1 / ed. by Krzysztof Pieliowski. – Kraków, cop. 2010

Contents

Preface	V
Contents	7
Formation and Morphology of Sodium Tripolyphosphate Marcin Banach, Zygmunt Kowalski, Agnieszka Makara, Katarzyna Gorazda	1
Selected Problems of Plastic Waste Pyrolysis - Purification of Pyrolytic Oil from Chlorine (Organochlorine Compounds) Oskar Bartyzel, Tomasz Majka, Krzysztof German	11
Molecular Characterization of Constituents of Multicomponent Synthetic Polymer Systems by Means of Advanced Liquid Chromatographic Methods Dusan Berek	17
Low Environmental Impact Polylactide Bionanocomposites: from the Processing to the Flame Retardancy Serge Bourbigot and Gaëlle Fontaine	27
Can We Make Responsible Nanocomposites? Satinder K. Brar, Gurpreet S. Dhillon, Mausam Verma	37
Single Molecule Microscopy- an Attractive Tool for Characterization of Nanoenvironments Corina Ciobanasu and Ulrich Kubitscheck	47
NANOPLAST: Nano-Technological Materials and Products in the Plastics Industry - Exposure Assessment and Toxicological Properties Per Axel Clausen, Nicklas Raun Jacobsen, Keld Alstrup Jensen, Anne-Lise Høg Lejre, Jesper Bøgelund, Asger W. Nørgaard, Anni Vibenholt, Ismo K. Koponen, Renie K. Birkedal, Peter Møller, Stejfen Loft, Håkan Wallin, Ulla Vogel	53
Ecological Solvent-Free Photoreactive Pressure-Sensitive Adhesives Based on Acrylics Zbigniew Czech, Agnieszka Butwin, Joanna Ortyl	61

Hexahydrophthalic Anhydride-Cured Epoxy Compositions Containing Waste Poly(ethylene terephthalate) Recycling Products Piotr Czub	73
Studies on the Rheological Properties of Compositions of Bisphenol-A Based Resin and Epoxidized Soybean Oil Piotr Czub, Katarzyna Kania	77
Measurement of CO ₂ Photogeneration as a Rapid Screen of the Influence of Oxide Nano-Particles on Photodegradation Terry A. Egerton, Paul A. Christensen, Jim R. White, Rui Yang	81
Intumescent PLA for Durable Applications Gaëlle Fontaine, Antoine Gallos and Serge Bourbigot	91
Quality Control in <i>in vitro</i> Nanoparticle Testing: Collagen Coating Can Optimise Particle Distribution on Adherent Cell Lines and Improve Data Quality Birgit K. Gaiser, David M. Brown, Vicki Stone	99
Water and Polymer Dynamics in Hydrogels L. Hartmann, A. Spanoudaki, A. Kyritsis, P. Pissis, R. Pelster, N. Shinyashiki, J. C. Rodríguez Hernández, J.L. Gómez Ribelles and M. Monleón Pradas	109
Exfoliation of Graphite Towards Preparation of Reinforced Epoxy Nanocomposites Edyta Hebda, Krzysztof Pielichowski	119
Combining Technology Modelling with Life Cycle Assessment Modelling for Eco- Innovation in the Chemical Process Industry Reinout Heijungs, Ester van der Voet, Lin Luo, Gjalt Huppes	123
Influence of Mixing Technique on Properties of PLA-based Biocomposites Andrzej Iwanczuk, Marek Kozłowski, Magdalena Lis, Paulina Niemiec	133
Polyurethane/POSS and Poly(urethane acrylate)/POSS Nanohybrids – Synthesis, Properties and Research Perspectives Małgorzata Jancia, Edyta Hebda, Krzysztof Pielichowski	139
Application of Positron Annihilation Lifetime Spectroscopy in Studies of Dental Composites Based on Dimethacrylate Resins Joanna Kleczewska, Dariusz M. Bieliński, Ewa Dryzek, Anna Piątkowska	143

The Influence of Flame Retardant Content on the Elastomer Flammability Magdalena Kmiotek, Joanna Kleczewska, Dariusz M., Bieliński	151
Production of Low-temperature Protein with Strong Gelling Properties by Chemical Methods Zygmunt Kowalski, Marcin Banach, Agnieszka Makara	159
Controlled Radical Polymerization as the Method for Modification of Polyurethanes by Vinyl Polymers Piotr Król, Paweł Chmielarz	169
Comparison of Mechanical and Viscosity Properties of Biocomposites Filled with Wood Flour or Flax Fibers Paulina Kuźniar, Aneta Liber-Kneć, Stanisław Kuciel	175
Effect of the Type of Layered Mineral on the Mechanical and Thermal Properties of Carboxylated Butadiene-Acrylonitrile Rubber Anna Laskowska, Magdalena Lipińska, Marian Zaborski	181
Wetting Properties of Natural and Synthetic Fibers Karol Leluk, Marek Kozłowski	189
The Synthesis and Investigation of Structure - Properties Relationship in Polyoxymethylene (POM) / Montmorillonite (MMT) Nanocomposites Agnieszka Leszczyńska, Krzysztof Pielichowski, Tomasz Majka	193
Mechanical Properties of Tricomponent Mixtures Based on Production Waste Polymers from Electrotechnical Industry Aneta Liber-Kneć, Stanisław Kuciel	203
Synthesis, Properties and Applications of New Fertilizers Based on Acrylic Hydrogel Elżbieta Malewska, Anna Sabanowska, Jerzy Polaczek	207
Properties of Silicone Rubber with Pigment-modified Silicas Anna Marzec, Marian Zaborski, Magdalena Lipińska	213
Supramolecular Design of Biocompatible Hybrid Organic-Inorganic Polymeric Additives Bartosz Marzec, Adam Dowling, Garry Flemin and Wolfgang Schmitt	219
Naphthoquinone Derivatives as Anti-Oxidants for Elastomers Anna Masek, Ewa Chrześcijańska, Marian Zaborski	225

Nanocomposite Polyhydroxybutyrate-Chitosan-Hydroxyapatite Systems Lubomir Medvecký	233
Interaction of Nanoparticles and Cells - Cellular Uptake and Cytotoxic Effects <i>in vitro</i> Andrea Neumeyer, Mirko Bukowski, Michael Veith, Claus-Michael Lehr and Nicole Daum	239
Nanoparticles Released from Structural Nano-enhanced Products Following Mechanical Loading at Low Velocity Impacts: A Case Study on Structural Polyurethane Nanoreinforced Foams James Njuguna, Sophia Sachse, Ifran Adeel, Huijun Zhu, Sławomir Michałowski, Krzysztof Pielichowski	247
The Influence of Dispersed Nano-Sized Particles on P30T-Based Photovoltaic Device Natalia Nosidlak, Robert P. Socha, Dawid Wódka, Jerzy Sanetra, Ewa Kulig	255
Electrically Conductive Polymer Blends and Composites for Environmental Applications Maria Omastova	263
Author index	269
Subject index	273