In this issue

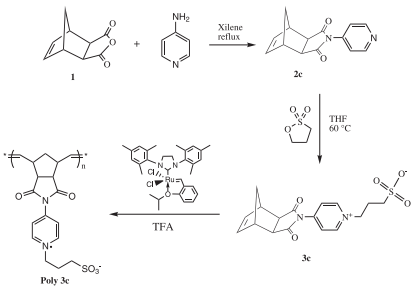
Armando Pineda-Contreras, Julia V. Hernández-Madrigal, Oscar F. Vázquez-Vuelvas and Serguei Fomine

Synthesis and ROMP of new sulfobetaine and carboxybetaine norbornene

DOI 10.1515/epoly-2015-0266
e-Polymers 2016; 16(3): 181–188

Full length article: The synthesis of sulfobetaines monomers based on norbornenes structural motif is described and the ROMP was carried out in TFA solvent, which has no apparent detrimental effect on H-G catalyst.

Keywords: norbornene; polycarboxybetaines; polysulfobetaines; polyzwitterion; ROMP.



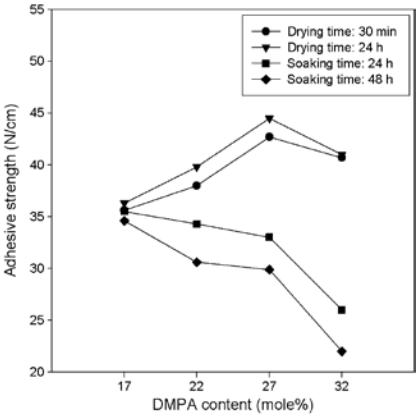
Jung-Mi Cheon, Seul-Gi Lee, Jae-Hwan Chun, Dong-Jin Lee, Young-Hee Lee and Han-Do Kim

Preparation and properties of emulsifier-/NMP-free crosslinkable waterborne polyurethane-acrylic hybrid emulsions for footwear adhesives (II) – effect of dimethylol propionic acid (DMPA)/ pentaerylthritol triacrylate (PETA) content

DOI 10.1515/epoly-2016-0005
e-Polymers 2016; 16(3): 189–197

Full length article: Solvent/ emulsifier-free approach has potential advantages. There is little research paper on the optimum content of dimethylol propionic acid (DMPA)/ pentaerythritol triacrylate (PETA) in crosslinkable polyurethane-acrylate for footwear adhesives.

Keywords: adhesives; crosslinkable; emulsifier-/NMP-free; high performance footwear; waterborne polyurethane-acrylic hybrid emulsions.



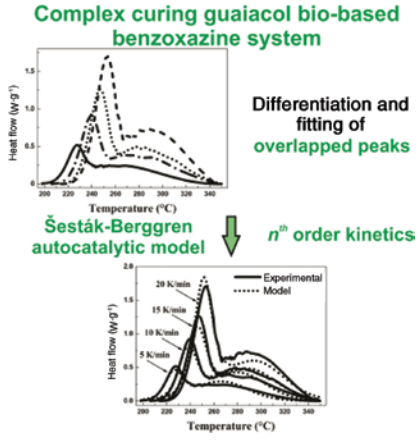
Aleš Ručigaj, Špela Gradišar and Matjaž Krajnc

Kinetic investigation of a complex curing of the guaiacol bio-based benzoxazine system

DOI 10.1515/epoly-2015-0250
e-Polymers 2016; 16(3): 199–206

Full length article: The curing kinetics of the benzoxazine system was investigated and consisted of two overlapped peaks. The first was successfully fitted to the Šesták-Berggren autocatalytic model and second to the n^{th} order kinetics.

Keywords: bio-based polybenzoxazine; deconvolution; guaiacol; kinetic model; thermal polymerization.



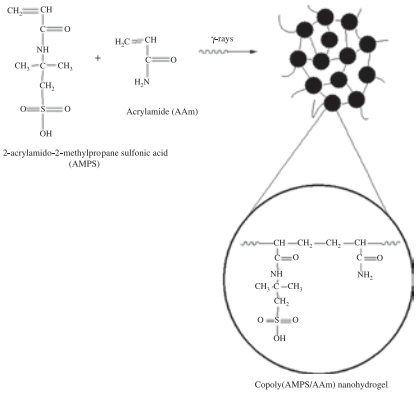
Ahmed Awadallah-F, Soad Y. Abd El-Wahab and H.I. Al-Shafey

Controlled synthesis and characterization of nanohydrogels formed from copolymer (2-acrylamido-2-methylpropane sulfonic acid/acrylamide)

DOI 10.1515/epoly-2015-0263
e-Polymers 2016; 16(3): 207–215

Full length article: The synthesis of novel nanohydrogels using gamma irradiation technology. The results showed the formation of nanohydrogels at a specific and unique dose and composition of materials using absorbed gamma irradiation. The final particle size depends basically on monomer composition, monomer concentration and exposure irradiation dose. The final particle size ranged from ~9.5 to ~39 nm.

Keywords: acrylamide; 2-acrylamido-2-methylpropane sulfonic acid; gamma irradiation; high-resolution transmission electron microscopy (HR-TEM); nanohydrogels; sodium lauryl sulfate.



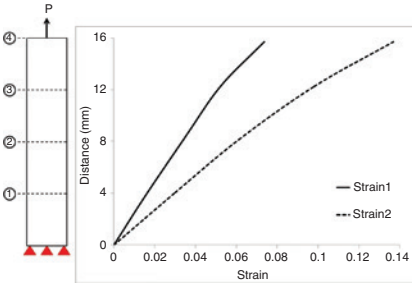
Fethma M. Nor, Ho Yong Lee, Joong Yeon Lim and Denni Kurniawan

Strain rate and temperature effects on elastic properties of polycaprolactone/starch composite

DOI 10.1515/epoly-2015-0261
e-Polymers 2016; 16(3): 217–223

Full length article: Polycaprolactone and starch blends were fabricated. A tensile test was carried out at three strain rates and at ambient and body temperatures. Strain rate and temperature affect the blend's elastic properties.

Keywords: composite; mechanical properties; strain rate; temperature.



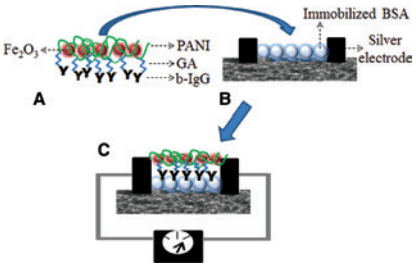
Roswani Shaimi, Nabilah Mohamad Ketar Mokhtar, Peng Chee Tan, Zeinab Abbas Jawad and Siew Chun Low

Chemical oxidative polymerization of conductive polyaniline-iron oxide composite as electro-transducer for electrochemical sensing applications

DOI 10.1515/epoly-2015-0230
e-Polymers 2016; 16(3): 225–233

Full length article: (A) Synthesis of conductive PANI-Fe_2O_3 nanocomposite. (B) Explore protonation level of PANI at different concentration of monomer and volume of oxidizing agent. (C) PANI role to convert biochemical interaction into measurable resistance signal.

Keywords: bio-conjugations; electrochemical-transmission; oxidative polymerization; polyaniline; transducer.



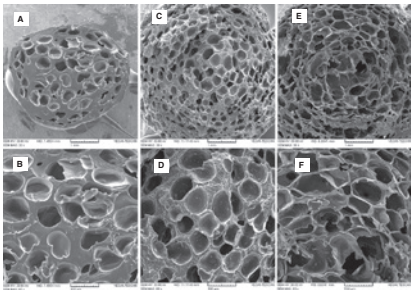
Mohammad Fasihi, Ali Asgari Targhi and Hossein Bayat

The simultaneous effect of nucleating and blowing agents on the cellular structure of polypropylene foamed via the extrusion process

DOI 10.1515/epoly-2016-0033
e-Polymers 2016; 16(3): 235–241

Full length article: The microstructure of foams prepared by different blowing agent/nucleating agent combinations are discussed.

Keywords: blowing agent; extrusion; foam; nucleating agent; polypropylene.



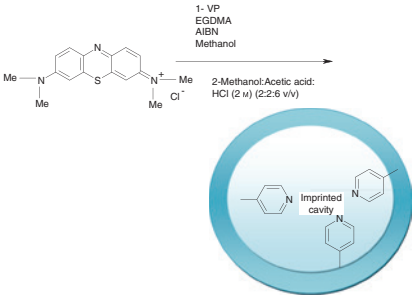
Mostafa Khajeh, Shahnaz Afzali Moghaddam, Mousa Bohlooli and Mansour Ghaffari-Moghaddam

Application of the artificial neural network and imperialist competitive algorithm for optimization of molecularly imprinted solid phase extraction of methylene blue

DOI 10.1515/epoly-2016-0009
e-Polymers 2016; 16(3): 243–253

Full length article: A hybrid of ANN-ICA has been used for the prediction and optimization of the method. Methylene blue imprinted polymer microparticle was prepared by radical polymerization. Excellent specific adsorption capacity was obtained for methylene blue. Good recovery and sensitivity was obtained for methylene blue using the MIP adsorbent. The hybrid of ANN-ICA was used for the first time in the analytical chemistry.

Keywords: artificial neural network; imperialist competitive algorithm; methylene blue; molecularly imprinted polymer; water samples.



Zhang Guangjian and Wang Jincheng

Study on application behavior of pyrolysis char from waste tires in silicone rubber composites

DOI 10.1515/epoly-2015-0285
e-Polymers 2016; 16(3): 255–264

Full length article: A novel type of pyrolysis char (PC) was prepared from waste tires. The preparing conditions, structure, and properties of the optimal PC were obtained and characterized. Then, this type of PC was applied into pure silicone rubber (SR). The thermal stability, flame-retardant behavior, and tensile property of these SR/PC composites were investigated. Results showed that the vertical burning time and limited oxygen index (LOI) of these composites were improved. In addition, the reinforcing and flame-retardant mechanisms of PC in SR composites were revealed.

Keywords: flame-retardance; properties; pyrolysis char; silicone rubber; waste tire.