

Macromolecular Rapid Communications

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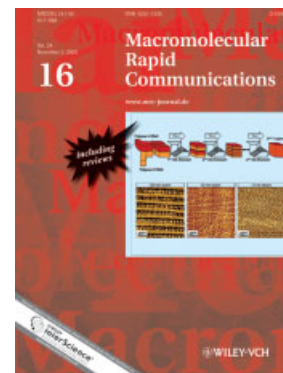
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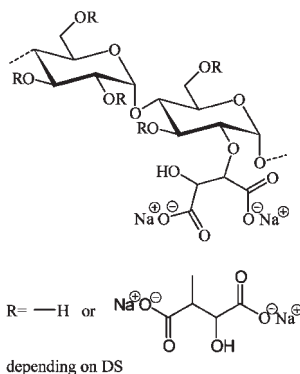
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Cover: The cover picture shows that layer-multiplying coextrusion uses forced-assembly to create films with thousands of alternating nanolayers of two polymers. As the layer thickness becomes comparable to the dimension of interfacial mixing, the constituent layers lose their integrity and the entire film becomes a new interphase material.



Details can be found in the Communication by R. Y. F. Liu, Y. Jin, A. Hiltner,* and E. Baer on page 943.

Communication: New tartaric acid starch ethers were synthesized by using starch sources of different amylose content. The reactions were carried out heterogeneously in ethanol/water mixtures with *cis*-disodium-epoxysuccinate as etherifying reagent (see Scheme) leading to products with a degree of substitution (DS) up to 0.3. The molecular structure of the new starch ethers was evaluated by elemental analysis, FTIR and ^{13}C NMR spectroscopy.

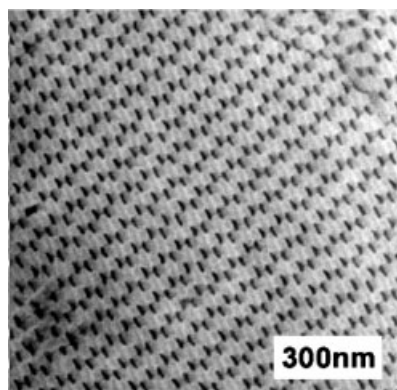


Tartaric Acid Starch Ether: A Novel Biopolymer-Based Polyelectrolyte

C. Grote, W. Lazik, T. Heinze*

Macromol. Rapid Commun. **2003**, *24*, 927–931

Communication: Blending of block copolymers is a way to novel superlattices. In mixtures of ABC with BC, besides core-shell analogues of the well-established diblock copolymer morphologies, other superstructures may also be formed which do not have analogues in binary block copolymers. This demonstrates that the blending of block copolymers is a powerful way to new superstructures of self-assembling materials.

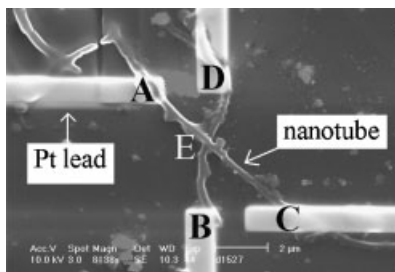


Novel Superlattices via Blending of Asymmetric Triblock Terpolymers with Diblock Copolymers

S. Jiang, A. Göpfert, V. Abetz*

Macromol. Rapid Commun. **2003**, *24*, 932–937

Communication: The conductivity of an individual camphor sulfonic acid (CSA) doped polyaniline (PANI) nanotube synthesized by the self-assembly method was found to be $\approx 30.5 \text{ S} \cdot \text{cm}^{-1}$, which is comparable to that of a template-synthesized PANI nanotube. The contact resistance between two crossed nanotubes to which Pt leads have been attached by focused ion beam deposition was found to be $500 \text{ k}\Omega$, which was much larger than that for an individual nanotube ($30 \text{ k}\Omega$). Pellets of the nanotubes were poorly conductive.

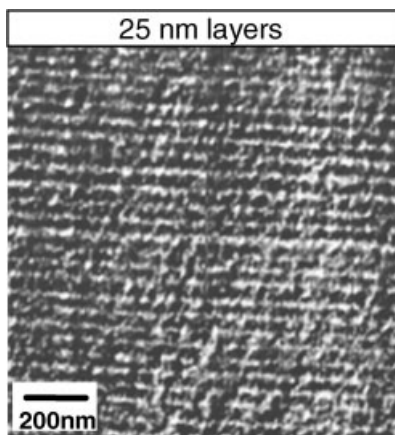


Electrical Conductivity of an Individual Polyaniline Nanotube Synthesized by a Self-Assembly Method

Y. Long, L. Zhang, Y. Ma, Z. Chen,* N. Wang, Z. Zhang, M. Wan

Macromol. Rapid Commun. **2003**, *24*, 938–942

Communication: Nanolayer films (see Figure) with thousands of alternating layers of immiscible polycarbonate and poly(methyl methacrylate) were fabricated by layer-multiplying coextrusion. In contrast to the well-known concept of self-assembly, layer multiplication used forced-assembly to create polymeric systems with layers less than 10 nm in thickness. This allowed the use of conventional analytical methods to probe the interphase properties as nanolayers became thinner and more interphase-like.

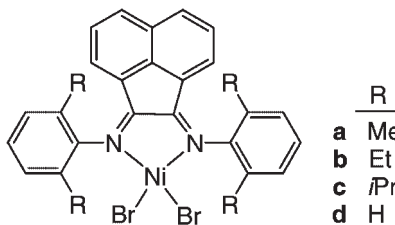


Probing Nanoscale Polymer Interactions by Forced-Assembly

R. Y. F. Liu, Y. Jin, A. Hiltner,* E. Baer

Macromol. Rapid Commun. **2003**, *24*, 943–948

Communication: Polymerizations of vinyl ethers were carried out with (α -diimine)nickel(II) catalysts (see Scheme), prepared by changing the bulkiness of ligand substituents in the *ortho* aryl position, in the presence of methylaluminoxane. Structural variations of the catalyst result in no specific trends in the yield and stereospecificity.

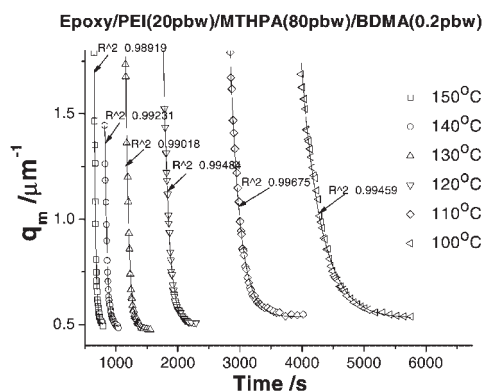


Polymerization of Vinyl Ethers by (α -diimine)Ni^{II}/Methylaluminoxane Catalysts

I. Kim,* Y. S. Ha, C.-S. Ha

Macromol. Rapid Commun. **2003**, *24*, 949–951

Communication: The results of time-resolved light scattering for the phase separation of epoxy/polyetherimide/anhydride blends show that the evolution of scattering vector q_m follows a Maxwell-type relaxation equation. The relaxation time may be suggested as the time for the diffusion of the epoxy-anhydride n -mers from the PEI-rich phase by their relaxation movement, and the activation energy of the relaxation movement is obtained.

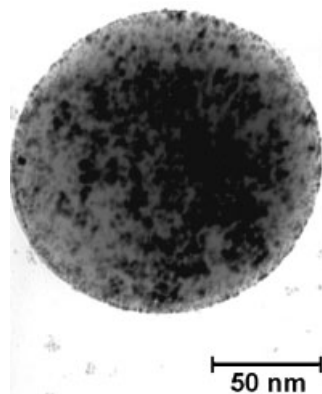


Morphology Evolution during the Phase Separation of Polyetherimide/Epoxy Blends

W. Gan, Y. Yu, M. Wang, Q. Tao, S. Li*

Macromol. Rapid Commun. **2003**, *24*, 952–956

Communication: A transmission electron microscopy (TEM) image of the Au@PLLA-PEG@PNIPAAm-PDLA “shell-in-shell” structures fabricated with poly(*N*-isopropylacrylamide), poly(lactide), poly(ethylene glycol), and Au nanoparticles is presented. The lower critical solubility temperature of the structures was manipulated to 36.4 °C, which was confirmed by UV/Vis spectroscopy and DSC (differential scanning calorimetry).



Encapsulation of Bovine Serum Albumin in Temperature-Programmed “Shell-in-Shell” Structures

Y.-S. Jo,* D.-K. Kim, Y.-K. Jeong, K.-J. Kim, M. Muhammed*

Macromol. Rapid Commun. **2003**, *24*, 957–962

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