Macromolecular
Chemistry and Physics

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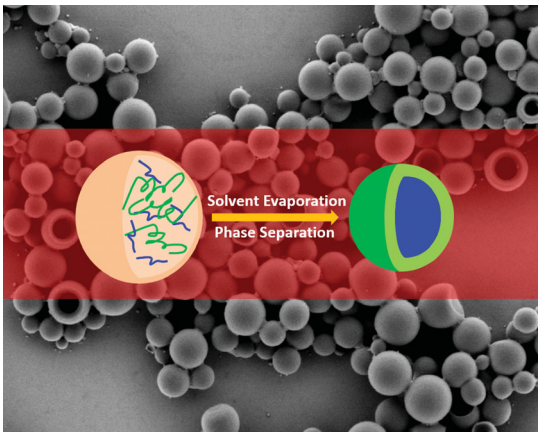
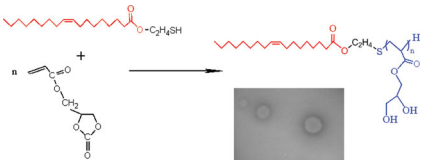
Front Cover: A simple and mild approach for encapsulation of reactive azide-terminated polyisobutylene in nanocontainers of poly(vinyl formal) is reported. The core-shell nanoparticles can be visualized directly in fluorescence microscopy by labelling the two polymers with different dyes or extracting the core polymer with a selective solvent. Further details can be found in the article by Y. Zhao, D. Döhler, L.-P. Lv, W. H. Binder, K. Landfester, and D. Crespy* on page 198.



Full Papers

Various biobased compounds are polymerized to give amphiphilic polymers according to a simple procedure. Telomerization of glycerin-derived acrylate with mercaptan-modified fatty acids as telogen agents is studied, leading to telomers capable of self-assembling into nanosized spherical particles in aqueous solution.

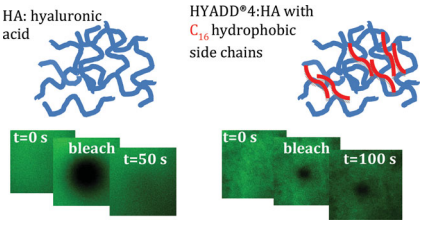


Synthesis of Amphiphilic Polymers Based on Fatty Acids and Glycerol-Derived Monomers – A Study of Their Self-Assembly in Water

J. Rotta, P. D. Pham, V. Lapinte, R. Borsali, E. Minatti, J.-J. Robin*

Macromol. Chem. Phys. **2014**, *215*, 131–139

Fluorescence recovery after photobleaching shows dramatic differences in the diffusional behavior of hyaluronic acid (HA) and partially hydrophobized hyaluronic acid (HYADD4): in HA, the fluorescence is recovered after about 50 s, whereas in HYADD4 the bleach remains after several minutes. The polymer concentration, C_p = 0.8% (w/v), is the same in both experiments.



Collective Dynamics and Transient Behavior of Partially Hydrophobic Hyaluronic Acid Chains

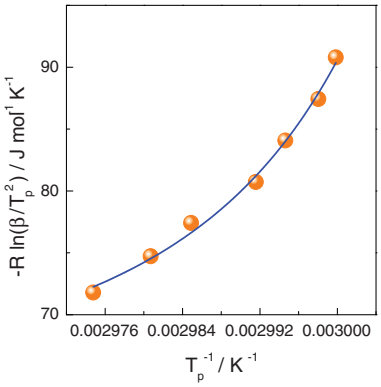
I. Finelli, E. Chiessi, L. Oddo, D. Galesso, D. Renier, G. Paradossi*

Macromol. Chem. Phys. **2014**, *215*, 140–147

Polymer Melting Kinetics Appears to be Driven by Heterogeneous Nucleation

S. Vyazovkin,* B. Yancey, K. Walker

Macromol. Chem. Phys. **2014**, *215*, 205–209

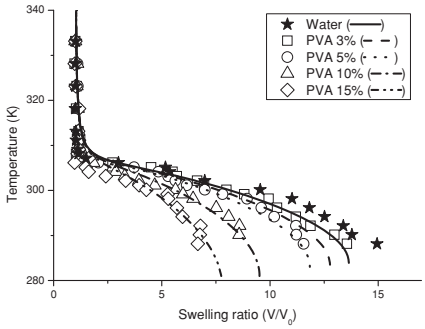


By using the well-known Kissinger plot, $\ln(\beta/T_p^2)$ vs. T_p^{-1}, a temperature dependence of the effective activation energy for polymer melting can be evaluated. A simple theoretical treatment of this dependence in the framework of a nucleation model allows nucleation parameters to be obtained that consistently indicate that polymer melting is driven by heterogeneous nucleation.

Swelling Behaviors of Poly(*N*-isopropylacrylamide) Nanosized Hydrogel Particles/Poly(vinyl alcohol)/Water Systems: Effect of the Degree of Hydrolysis of PVA

S. M. Kim, J. S. Choi, Y. C. Bae*

Macromol. Chem. Phys. **2014**, *215*, 210–216



The swelling behaviors of poly(*N*-isopropylacrylamide) (PNIPA) gel particles are measured in aqueous poly(vinyl alcohol) (PVA) solutions. The absorption of PVA is influenced by the degree of hydrolysis of the PVA. Model parameters are obtained from corresponding liquid–liquid equilibria (LLE) data or experimental conditions to give physical meaning. In addition, various equilibrium properties are presented using the same parameters.