



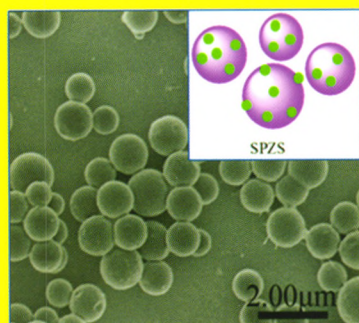
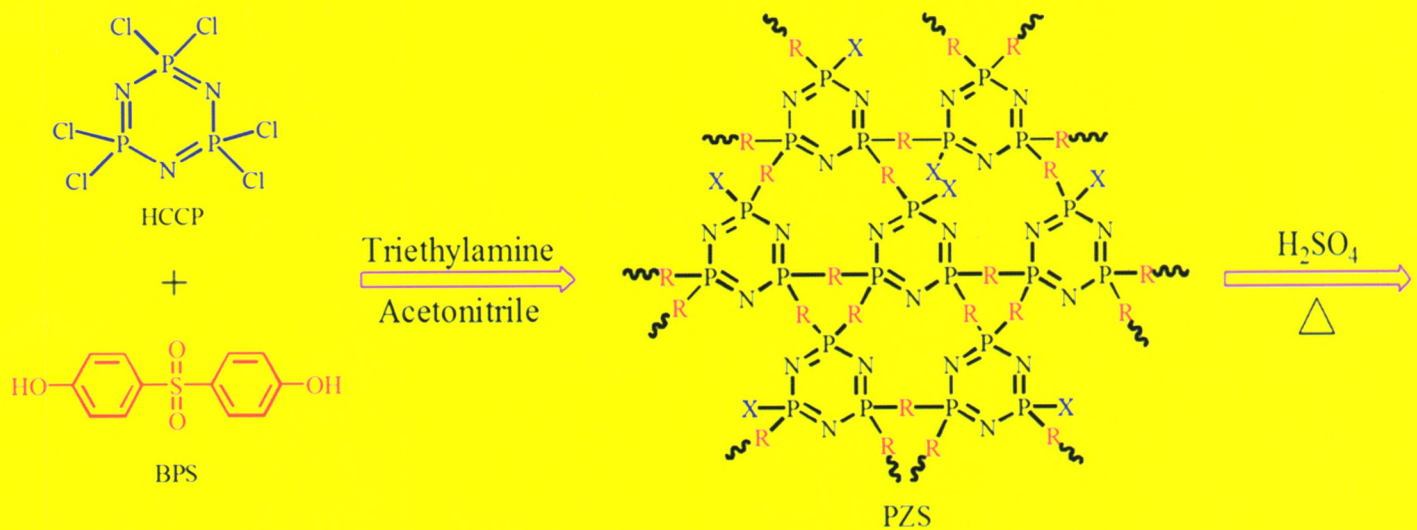
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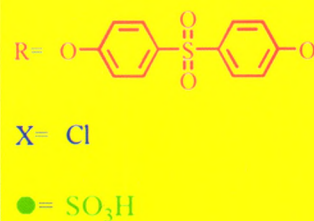
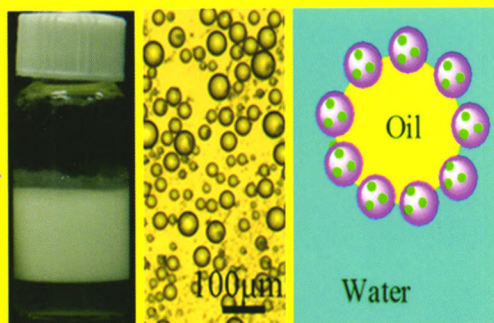
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功能高分子学报

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Emulsification



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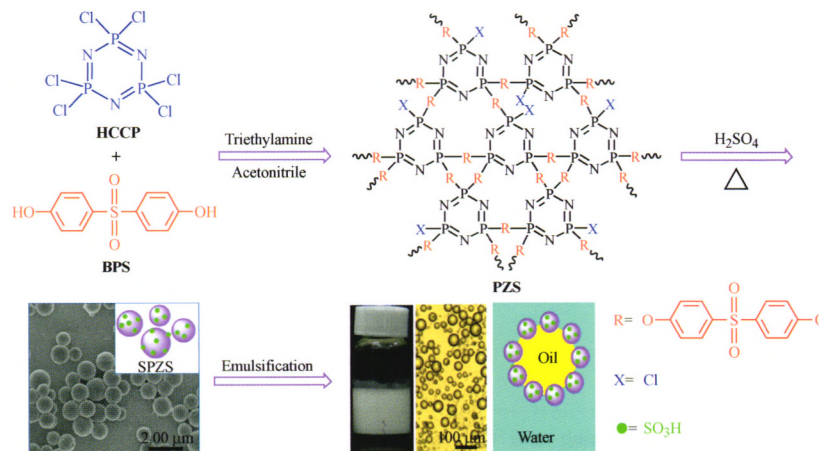
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Papers

Preparation and Emulsifying Performance of Sulfonated Polyphosphazene Microspheres

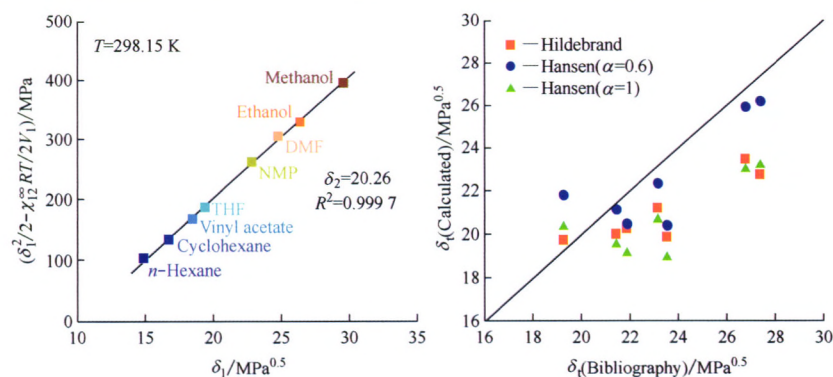


WEI Wei, LU Rong-jie, HU Qiong, ZHU Ye, LUO Jing, LIU Xiao-ya

Journal of Functional Polymers, 2015, 28(3): 225-233.

Sulfonated polyphosphazene (SPZS) microspheres are prepared by one-step precipitation copolymerization of hexachlorocyclotriphosphazene (HCCP) and 4,4'-sulfonyldiphenol (BPS). SPZS microspheres can well stabilize a variety of water-oil system to form fine oil-in-water Pickering emulsions. The emulsifying performance of SPZS microspheres is influenced by the microsphere concentration, volume ratio of oil to water and NaCl concentration of aqueous phase.

Calculation of Solubility Parameter of Polymers Based on COSMO-SAC Model



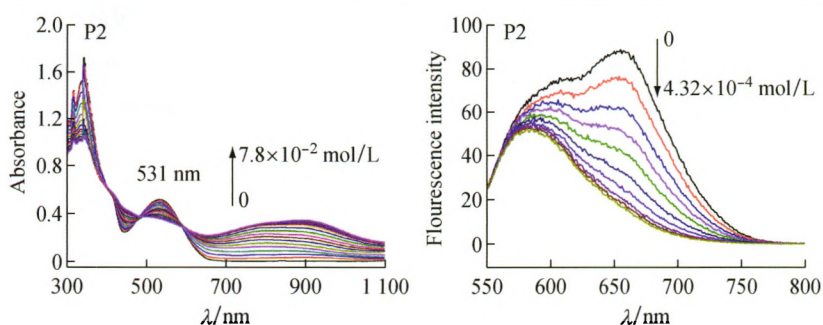
ZHU Zheng-hao, XU Zhen-liang, WEI Yong-ming, XU Hai-tao

Journal of Functional Polymers, 2015, 28(3): 234-241.

Several Flory-Huggins interaction parameters between polymeric membrane materials and different solvents were calculated based on COSMO-SAC model. The Hildebrand solubility parameter and the Hansen solubility parameter were obtained based on the relationship between solubility parameter and interaction parameter. Compared with bibliography data, the calculated results of Hansen solubility parameter were the best when correction factor (α) was 0.6.

Oxidative Polymerization of Dithiophene Quinoxaline and Its Acidichromic Properties

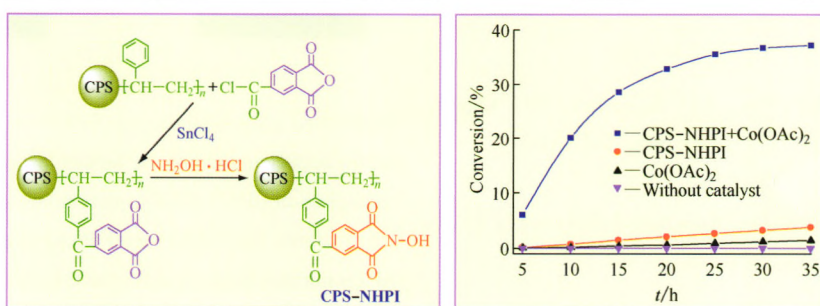
Mamtimin MAHMUD, Ismayil NURULLA, Tunsagul AWUT, Musa MURTIZA, Adiljan ABDUWALI
Journal of Functional Polymers, 2015, 28(3): 242-249.



Four dithiophene quinoxaline type polymers were synthesized by oxidative polymerization of dithiophene quinoxaline derivatives using anhydrous FeCl₃ as oxidant. The polymer solution in CHCl₃ exhibits significant changes in color and there appears a new broad absorption band in the range of 600–1100 nm. The polymer solution in CHCl₃ has certain fluorescence properties, and the fluorescence intensity decreases and emission wavelength exhibits blue shift when certain concentration of TFA is added to the polymer solution.

Synchronously Synthesizing and Immobilizing NHPI on CPS Microspheres and Primarily Investigating Catalytic Oxidation Activity of Solid Catalyst

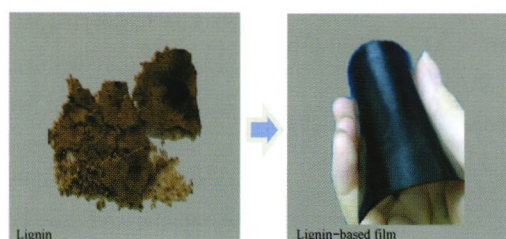
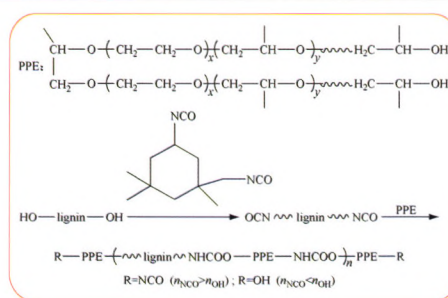
BI Cong-cong, DONG Ting-ting, GAO Bao-jiao
Journal of Functional Polymers, 2015, 28(3): 250-258.



Synchronously synthesizing and immobilizing *N*-Hydroxyphthalimide (NHPI) on crosslinked polystyrene (CPS) microspheres were realized via two steps of macromolecule reactions. The heterogeneous catalyst microspheres CPS-NHPI, which in combination with Co(OAc)₂, displays fine catalytic activity in the oxidation reactions of ethylbenzene and cyclohexane with molecular oxygen as oxidant.

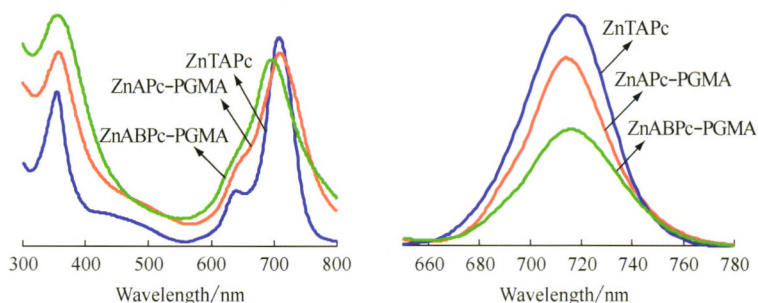
Preparation and Characterization of the Lignin-Based Films Modified by Polyether Polyols

HUANG Ping, FANG Xiang-chen, BAI Fu-dong, LIAO Jian-jun, ZHANG Yan, LANG Mei-dong
Journal of Functional Polymers, 2015, 28(3): 259-264.



The soft segment of polyether polyols was introduced into the lignin by chemical conjugation. The thermal stability was improved and the processing performance was enhanced accordingly. The copolymers exhibited good mechanical properties, under the condition of $n_{\text{NCO}} : n_{\text{OH}}$ of 1.5 : 1, the mass content of the lignin 33% and the molecular weight of polyether polyol 1500.

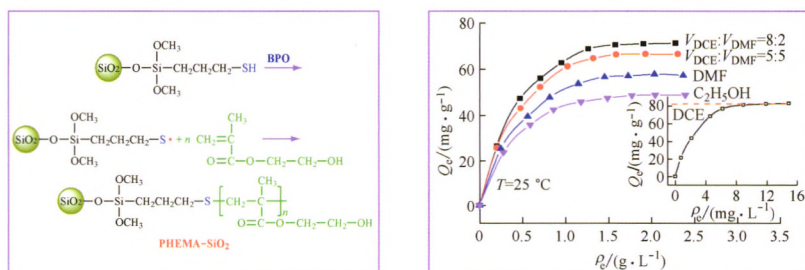
Preparation and Spectroscopic Properties of Polyglycidyl Methacrylate Bonding Zinc Phthalocyanine on Side Chains



WANG Hong-jing, WANG Rui-xin, WANG Xiao-gang, XIE Mei-na, CAO Qing-song
Journal of Functional Polymers, 2015, 28(3): 265-271.

The polyglycidyl methacrylate (PGMA) bonded with the amino zinc phthalocyanine (ZnAPc) (denoted as ZnAPc-PGMA) and the aromatic Schiff base-contained zinc phthalocyanine (denoted as ZnABPc-PGMA) were prepared separately. The obtained ZnAPc-PGMA and ZnABPc-PGMA possess the characteristic electronic absorption and fluorescence emission spectra of zinc phthalocyanine. As ZnTAPc is bonded to PGMA, its aggregability is weakened effectively.

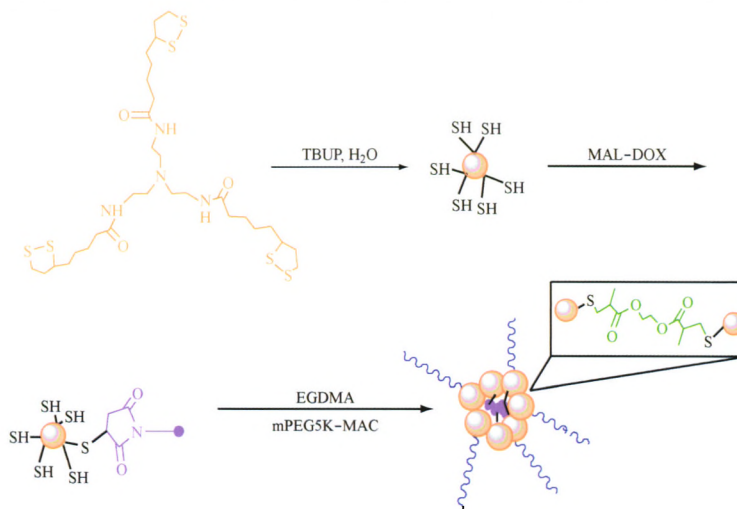
Preparation of Grafted Particles of PHEMA-SiO₂ in Non-aqueous Media by Surface-Initiated Graft Polymerization Method and Their Adsorption Property for Quercetin



CHEN Lu-lu, MENG Jian, LI Yan-bin, GAO Bao-jiao
Journal of Functional Polymers, 2015, 28(3): 272-280.

The graft-polymerization of 2-hydroethyl methacrylate (HEMA) on the surface of silica gel particles in the non-aqueous medium was carried out smoothly by the initiating of —SH/BPO surface-initiating system. The grafted particles PHEMA-SiO₂ have strong adsorption ability for quercetin via hydrogen bond interaction.

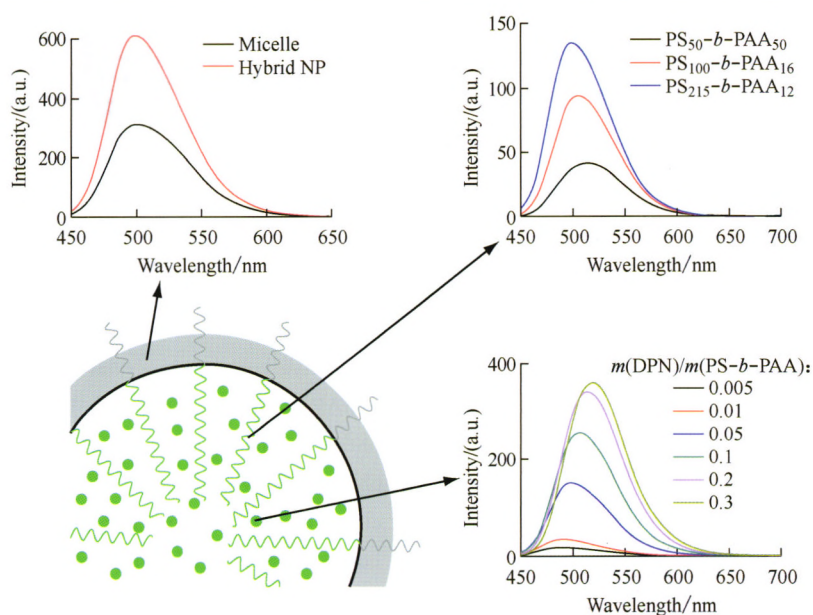
Synthesis and pH-Sensitive Drug Release of DOX Conjugated Polymer Nanoparticles



ZHAO Xin, CAO Ming, FENG Xiao-shuang, CHEN Peng, ZHANG Yu-jiao, SONG Chang-jiang
Journal of Functional Polymers, 2015, 28(3): 281-287.

Core crosslinked nanoparticles were synthesized via click reactions of thiol-acrylate using ethylene diacrylate (EGDMA) as crosslinker. The surface of the nanoparticles was decorated with hydrophilic polyethylene glycol (PEG) and the doxorubicin (DOX) was conjugated onto the core of the nanoparticles through the drazone bond.

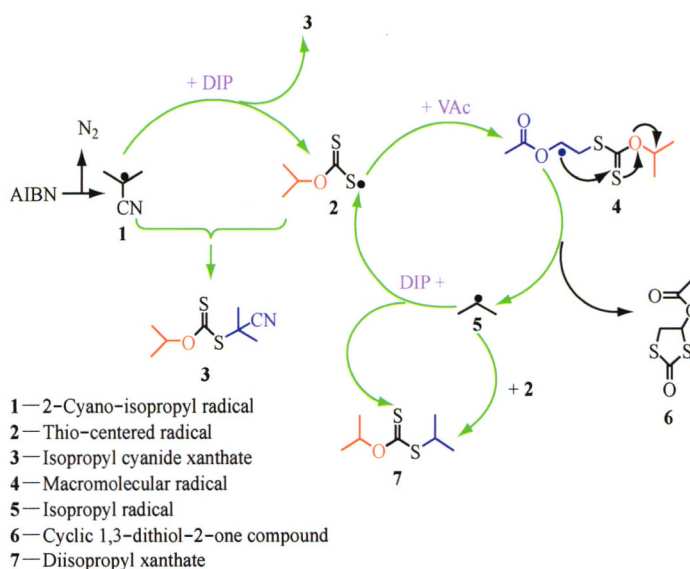
Synthesis and Properties of Naphthalimide-Derivatives-Encapsulated Hybrid Fluorescent Nanoprobes



WANG Yao, JIA Xiao-bo, NIU De-chao, CHEN Jian-zhuang, LI Yong-sheng
Journal of Functional Polymers, 2015, 28(3): 288-293.

A series of hybrid fluorescent nanoprobes (DPN@HNP) encapsulating hydrophobic naphthalimide derivatives (DPN) were prepared based on the self-assembly of amphiphilic block copolymer (PS-*b*-PAA) and the hydrolysis of organic silane, 3-mercaptopropyltrimethoxy-silane (MPTMS).

Reversible Addition-Fragmentation Chain Transfer Solution Polymerization of Polyvinyl Acetate



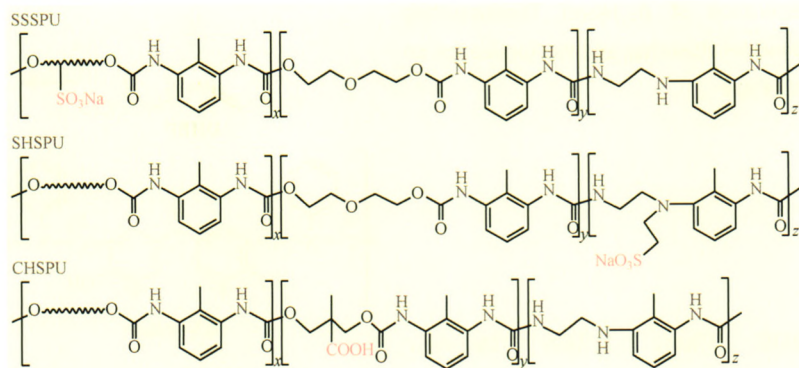
SU Mei, LIU Tao
Journal of Functional Polymers, 2015, 28(3): 294-301.

Polyvinyl acetate (PVAc) with low molecular mass ($M_n < 1.0 \times 10^4$) and narrow molecular mass distribution ($M_w/M_n < 1.5$) is synthesized by the reversible addition-fragmentation chain transfer (RAFT). The polymerization controllability in tetrahydrofuran is better than that in benzene. The polymerization rate and polydispersity index increase with the increasing of the content of the initiator. The lower reaction rate and better controllability of the polymerization are obtained with the increasing of the content of chain transfer agent. The polymerization rate and polydispersity index increase with increasing polymerization temperature.

Influence of Ionic Groups and Hydrogen Bonding Degree between Chain Segments on the Properties of Anionic Polyurethane

PENG Si-min, WANG Xiao-mei,
YANG Han, WU Xue-fen

Journal of Functional Polymers, 2015,
28(3): 302-306.

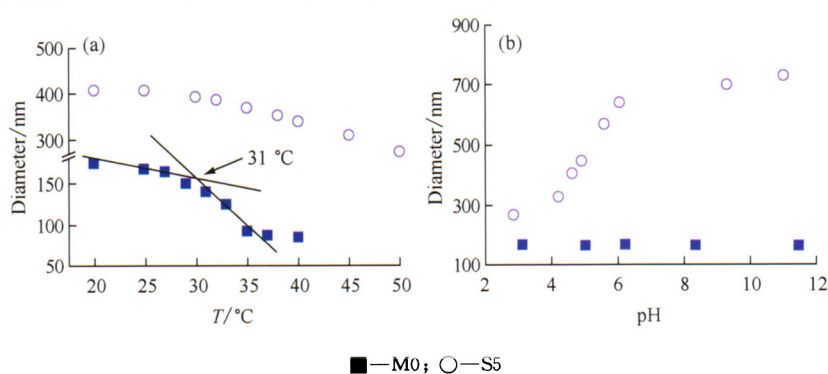


SSSPU, SHSPU and CHSPU have similar structures, but the type and location of ionic group are totally different between each other. The hydrogen bond interaction between hard segments or hard segments and soft segments will be influenced by the difference. Therefore, properties are also affected by the different structures.

Preparation and Performance Characterization of Multiple Responsive and Mono-disperse Poly (*N*-isopropylacrylamide-co-acrylic acid) Nanogels

MA Tian-ze, LI Xue-ting, ZHAO Di,
AN Dong, SHI Xiao-di, LU Xi-hua

Journal of Functional Polymers, 2015,
28(3): 307-312.

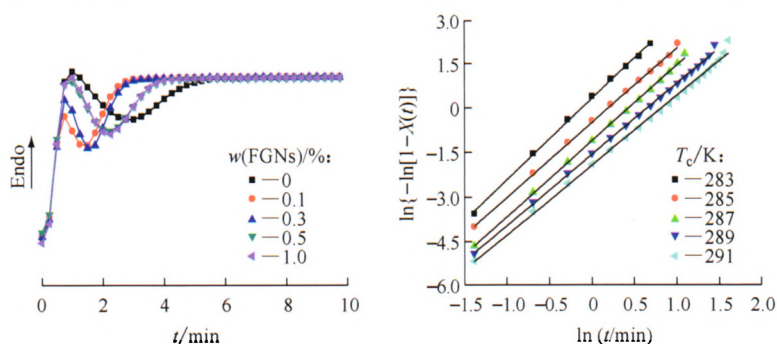


The thermo- and pH- sensitive monodisperse poly(*N*-isopropylacrylamide-co-acrylic acid) (P(NIPAM-co-AA)) nanogel was prepared through emulsion polymerization in aqueous solution using *N*-isopropylacrylamide (NIPAM) and acrylic acid (AA) as monomers. The nanogel was sensitive to temperature and pH, especially for pH of 4–6.

Isothermal Crystallization Kinetics of WPU-FGNs Nanocomposites

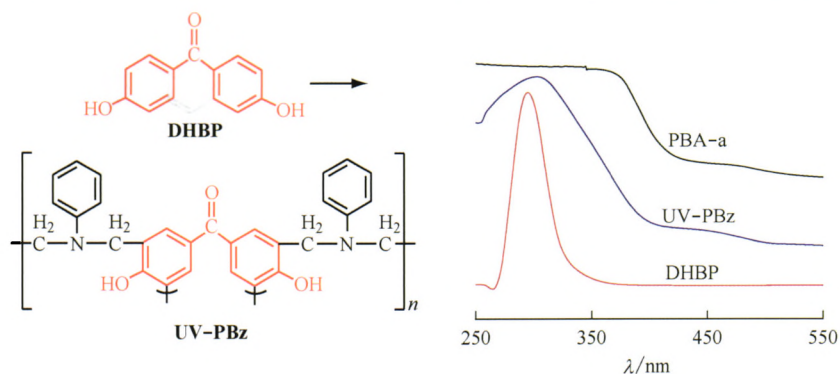
CHEN Tao, LI Xiao-xuan, WU Sheng-li

Journal of Functional Polymers, 2015,
28(3): 313-318.



Nanocomposites of waterborne polyurethane (WPU) with functionalized graphene nanosheets (FGNs) were prepared by direct solution blending. Avrami equation was valid for analyzing the isothermal crystallization behavior of WPU-FGNs nanocomposites generally. With the crystallization temperature increased, the crystallization half-time ($t_{1/2}$) and crystallinity of the composites were both increased.

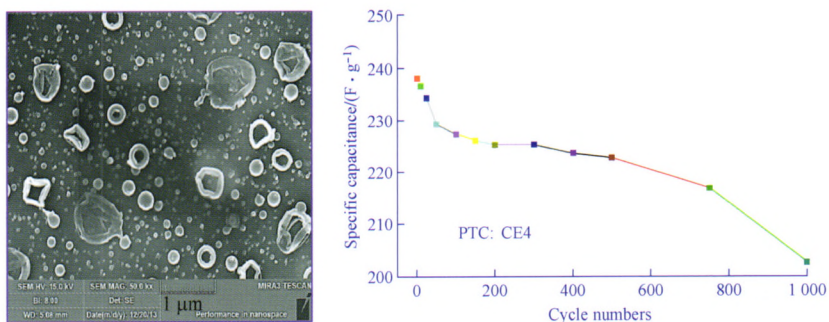
Preparation of A Novel Thermosetting Ultraviolet Absorber and Its Application on PBO Fiber



ZHOU Chao, CHEN Dan-dan,
ZHANG Kan, ZHUANG Qi-xin,
ZHOU Yun-chao, LIU Xiao-yun
Journal of Functional Polymers, 2015,
28(3): 319-324.

A new ultraviolet absorber (UV-Bz) was synthesized using ultraviolet absorber 4,4'-dihydroxybenzophenone (DHBP) as material. The corresponding polymer (UV-PBz) was obtained by thermal curing of UV-Bz. UV-PBz had a wide absorption at the wavelength of about 310 nm.

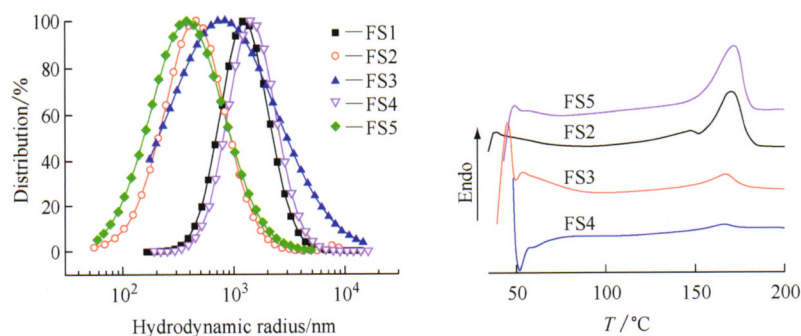
Effect of Phase Transfer Catalyst on Polypyrrole Interfacial Polymerization



YANG Qing-hao, YANG Lin-tao,
HOU Zhen-zhong, TU Zhong-yi
Journal of Functional Polymers, 2015,
28(3): 325-330.

With the addition of 0.04 mol/L CE, the specific capacitance of PPy films is 237.95 F/g, which is 4 times higher than PPy films (47.01 F/g) synthesized without CE, and the material is cyclic stably.

Preparation and Characterization of Perfluorinated Sulfonic Acid-Polyvinylidene Fluoride Compositing Nanofiber Membranes



LI Fang-bing, DONG Zhe-qin, WEI Yong-ming,
XU Zhen-liang, YANG Hu
Journal of Functional Polymers, 2015,
28(3): 331-336.

The strong interaction between PVDF and PFSA led to an increase in the viscosity of the mixed solution, and effectively improved the solution electrospinnability. The fiber diameter distribution became uniform with the increase of PVDF content.

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