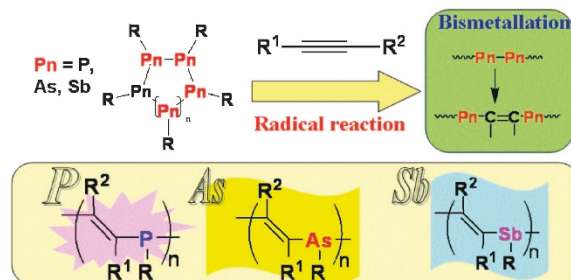


AWARD ACCOUNTS

SPSJ Wiley Award Accounts

Synthesis of Polymers Containing Group 15 Elements
via Bismetallation of Acetylenic Compounds

Radical 'bismetallation' to carbon-carbon triple bonds based on homolytic cleavage of element-element single bonds is one of the most useful and highly atom-economical methods for carbon-element bond formation. The polymerization between pentamethylpentacycloarsine (*cyclo*-(MeAs)₅) or hexaphenylhexacycloarsine (*cyclo*-(PhAs)₆) with acetylenic compounds in the presence of a catalytic amount of AIBN gave the corresponding poly(vinylene-arsine)s. The methodology of the radical alternating copolymerization was adopted for phosphorus- or antimony-ring compounds and acetylenic compounds to produce poly(vinylene-phosphine)s and poly(vinylene-stibine)s, respectively.

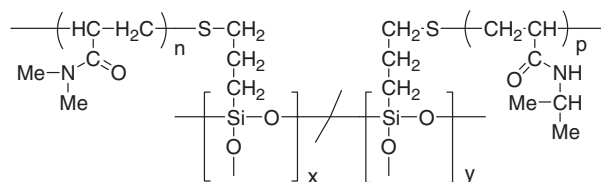


K. NAKA
Vol. 40, No. 11, pp 1031–1041 (2008)

REGULAR ARTICLE

Preparation of Thermoresponsive Grafted Polysilsesquioxane from Polyacrylamides Having Methoxysilyl End Group

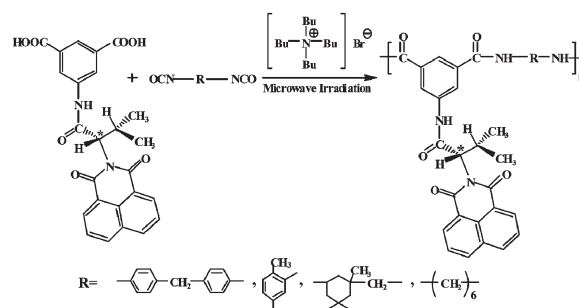
The condensation reaction of polymeric *N*-isopropylacrylamide (NIPAM) or *N,N*-dimethylacrylamide (DMAA), having methoxysilyl end group, gave the grafted polysilsesquioxanes soluble in usual organic solvent and water without gelation. The co-condensation enabled the formation of the polysilsesquioxane, which had respective poly(NIPAM) and poly(DMAA) graft chains. All the polymers having methoxysilyl end group and the grafted polysilsesquioxanes showed an amphiphilic property. Furthermore, those contained poly(NIPAM) were provided the expected property of thermoresponsive phase separation in an aqueous solution.



O. MORIYA, S. YAMAMOTO, T. MASUDA,
M. KASHIO, and T. SUGIZAKI
Vol. 40, No. 11, pp 1042–1048 (2008)

Molten Tetrabutylammonium Bromide as Eco-Friendly Media for the Synthesis of Optically Active and Thermal Stable Polyamides under Microwave Irradiation

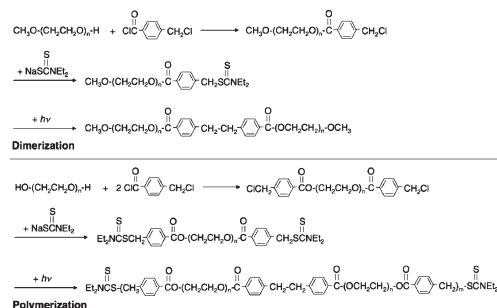
A fairly inexpensive and readily accessible molten ionic liquid, tetrabutylammonium bromide was used for the synthesis of thermal stable and novel optically active polyamides (PAs) from the reaction of dicarboxylic acids with different diisocyanates. Herein we wish to demonstrate that combining ionic liquid and microwave heating is an efficient method for the production of chiral extended PAs under green conditions. In another section of this research, kinetics study and mechanism of thermal decomposition behavior of these PAs was reported.



S. MALLAKPOUR and M. TAGHAVI
Vol. 40, No. 11, pp 1049–1059 (2008)

Photodimerization and Polymerization of PEG Derivatives through Radical Coupling using Photochemistry of Dithiocarbamate

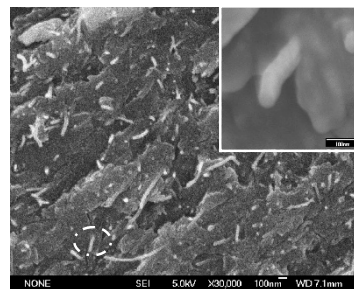
A novel polymerization based on the photochemistry of benzyl *N,N*-diethyldithiocarbamate (BDC) was developed. Upon UV irradiation to a *N,N*-dimethylformamide solution with extremely thin thickness containing mono-BDC-derivatized PEG or bis-BDC-derivatized PEG respective dimerization or polymerization of the PEG derivatives occurred due to bibenzyl bond formation by radical coupling between benzyl radicals generated in the terminal of the PEG derivatives. The crosslinking may be applied for molecular architecture to prepare more complex-shaped polymers, such as mesh or hyper-branching.



Y. NAKAYAMA, A. ISHIKAWA, R. SATO,
K. UCHIDA, and N. KAMBE
Vol. 40, No. 11, pp 1060–1066 (2008)

Phenolic Resin-MWNT Nanocomposites Prepared through an *in situ* Polymerization Method

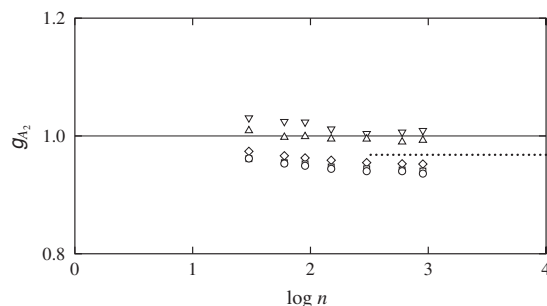
Phenolic resin-based nanocomposites with pristine or carboxylated multi-walled carbon nanotubes (MWNTs) as fillers have been prepared through an *in situ* polymerization method. As compared to pristine MWNT-filled nanocomposite, the carboxylated MWNT-filled one has shown improved thermostability, resulting from the higher dispersion quality of functionalized nanotubes.



J. CUI, Y. YAN, J. LIU, and Q. WU
Vol. 40, No. 11, pp 1067–1073 (2008)

A Monte Carlo Study of the Second Virial Coefficient of Semiflexible Regular Three-Arm Star Polymers

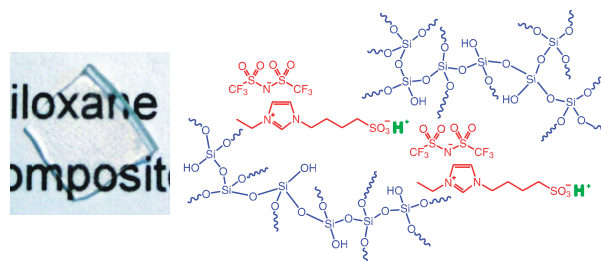
Monte Carlo results for the ratio g_{A_2} of the second virial coefficient A_2 of a regular three-arm star freely rotating chain to that of a linear one, both having the same total number n of bonds and the same bond angle $\theta = 109^\circ$ (\circ), 120° (\square), 135° (\diamond), 165° (\triangle), and 175° (∇), show that g_{A_2} is rather insensitive to change in θ (chain stiffness).



D. IDA and T. YOSHIZAKI
Vol. 40, No. 11, pp 1074–1080 (2008)

Thermally Stable and Proton Conductive Ionogel Based on Brønsted Acidic Ionic Liquid with the Support of Silicate Network

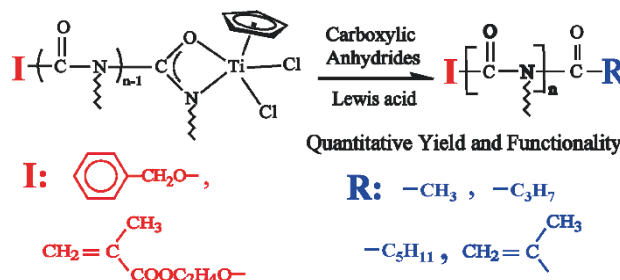
Glass-like gels that can conduct proton without humidification were prepared by sol-gel processing of tetramethoxysilane (TMOS) in the presence of Brønsted acidic ionic liquids. Brønsted acidic ionic liquids are mixtures of 1-(1-ethyl-3-imidazolium)butane-4-sulfonate (eim4S) and bis(trifluoromethyl sulfonyl)imide (HTf₂N). The sublimation of HTf₂N was successfully suppressed by using excess amount of eim4S. Because of thermal stability of both the ionic liquids and silicate network, the resulting gels showed relatively high ionic conductivity above 10⁻³ S cm⁻¹ at 150 °C.



T. MIZUMO, T. WATANABE, and H. OHNO
Vol. 40, No. 11, pp 1099–1104 (2008)

Preparation of α -, ω -End-Functionalized Poly(*n*-hexyl isocyanate) Heterotelechelic

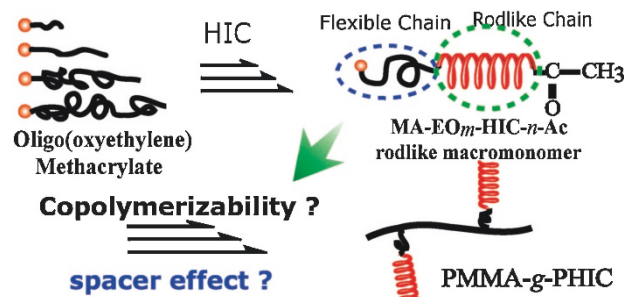
α - and ω -End-functionalized poly(*n*-hexyl isocyanate) (PHIC) has been prepared by living coordination polymerization of HIC, followed by termination with carboxylic anhydrides in the presence of Lewis acid. With BF₃OEt₂ as a Lewis acid and acetic anhydride as a terminator, several α -, ω -PHIC heterotelechelic were successfully prepared with quantitative yield (>98%) and functionality (~100%). The thermal stability of heterotelechelic PHIC was remarkably enhanced in benzene and solid state.



L. T. N. LIEN, M. KIKUCHI, A. NARUMI,
K. NAGAI, and S. KAWAGUCHI
Vol. 40, No. 11, pp 1105–1112 (2008)

Synthesis of Oligo(oxyethylene) Methacrylate-ended Poly(*n*-hexyl isocyanate) Rodlike Macromonomers and Their Radical Copolymerization Behavior with Methyl Methacrylate

Novel poly(*n*-hexyl isocyanate)(PHIC) rodlike macromonomers with an α -oligo(oxyethylene) methacrylate and an ω -acetyl groups (MA-EO_{*m*}-HIC-*n*-Ac, where *m* and *n* are the degree of polymerization of oxyethylene (EO) and HIC) have been prepared. The influence of a flexible oxyethylene chain on the copolymerizability with methyl methacrylate (MMA) has been studied. The value of 1/*r*₁ in the copolymerization of the macromonomer (M₂) with MMA (M₁) is ca. 0.52, irrespective of the oxyethylene length (*m*).



L. T. N. LIEN, M. KIKUCHI, A. NARUMI,
K. NAGAI, and S. KAWAGUCHI
Vol. 40, No. 11, pp 1113–1120 (2008)