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Article

Styrene–hydroxyethyl acrylate copolymer based alkyd resins with a comb-type structural morphology obtained with a high solid content

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ABSTRACT

Nowadays, so many studies are being carried out with the goal of obtaining environmentally friendly materials. In this study, styrene–hydroxyethyl acrylate copolymer (St-co-HEA) based alkyd resins with high solid contents and comb-type structural morphologies were synthesized from St-co-HEA and macromonomers [MMs; dimethylol propionic acid modified with different proportions of tall oil fatty acids (TOFAs)]. The molar mass and gloss values of St-co-HEA were lower than those of the alkyd resins, but the thermal stability, viscosity, and glass-transition temperature exhibited the opposite behavior. In all cases, the conversion percentage was higher than 80 %. The hydroxyl value and viscosity of the alkyd resins decreased with the TOFA content present in the MMrs, but the molar mass and the thermal stability increased. The rheological behavior of these resins was mainly pseudoplastic. Furthermore, the viscosity values were lower than 10 Pa s. © 2016 Wiley Periodicals, Inc. *J. Appl. Polym. Sci.* **2016**, *133*, 43996.

Citing Literature

Number of times cited according to CrossRef: 7

Fuhua Jia, Emmanuel Oluwaseyi Fagbohun, Qianyu Wang, Duoyin Zhu, Jianling Zhang, Bin Gong, Yanbin Cui, Improved thermal conductivity of styrene acrylic resin with carbon nanotubes, graphene and boron nitride hybrid fillers, *Carbon Resources Conversion*, 10.1016/j.crcon.2021.05.001, **4**, (190-196), (2021).

[Crossref](#)

Laima Vevere, Anda Fridrihsone, Mikelis Kirpluks, Ugis Cabulis, A Review of Wood Biomass-Based Fatty Acids and Rosin Acids Use in Polymeric Materials, *Polymers*, 10.3390/polym12112706, **12**, 11, (2706), (2020).

[Crossref](#)

Edwin A. Murillo, Waterborne star-shaped styrene-alkyd resins, *Journal of Applied Polymer Science*, 10.1002/app.48386, **137**, 8, (2019).

[Wiley Online Library](#)

S. Kocaman, A. Cerit, U. Soydal, M. E. Marti, G. Ahmetli, Evaluation of Fatty Acid Waste in the Synthesis of Oligo(Ether-Ester)s, *International Journal of Polymer Science*, 10.1155/2019/1519593, **2019**, (1-8), (2019).

[Crossref](#)

Jianjun Xiao, Zumin Qiu, Weiran Yang, Jumin Qiu, Tonglin Yang, Yongdong Xu, Yongjian Zeng, FangChao Wang, SiKuan Li, Organosilicone modification of allyl methacrylate with speier's catalyst for waterborne self-matting styrene-acrylic emulsion, *Progress in Organic Coatings*, 10.1016/j.porgcoat.2017.12.004, **116**, (1-6), (2018).

[Crossref](#)

Mapoloko Mpho Phiri, Waled Hadasha, Rueben Pfukwa, Bert Klumperman, Synthesis and characterization of liquid molecular brush binder for coating applications, *European Polymer Journal*, 10.1016/j.eurpolymj.2018.03.023, **102**, (178-186), (2018).

[Crossref](#)

María C. Mejía, Juliana Palacio, Edwin A. Murillo, Comb-shaped silicone-alkyd resins with high solid content, *Progress in Organic Coatings*, 10.1016/j.porgcoat.2017.02.002, **105**, (336-341), (2017).

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