

June 04-05, 2018
London, UKMin Seong Kim et al., Polym Sci 2018, Volume 4
DOI: 10.4172/2471-9935-C2-012

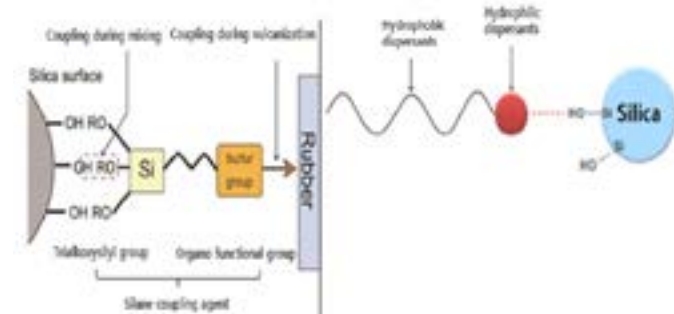
A COMPARATIVE STUDY ON THE DISPERSION EFFECTS OF VARIOUS DISPERSANTS IN MODIFIED SI-SBR COMPOSITES

Min Seong Kim¹, Jung Soo Kim¹, Hae Chan Kim¹, Woo Seung Shin¹, Yoo Jin Kim¹, Young Wook Chang² and Dong Hyun Kim¹

¹KITECH, Republic of South Korea

²Hanyang University, Republic of South Korea

The agglomeration of silica-silica in Si-SBR composites deteriorate the many properties of the tire tread rubber. We prepared various dispersants to improve the dispersibility of silica in Si-SBR composites: poly (itaconic acid-co-acrylamide), poly(styrene-co-allyl alcohol), poly(styrene-co-methyl methacrylate), and poly(glycidyl methacrylate-co-styrene). We confirmed the structure and molecular weight of the dispersants using FT-IR and GPC, respectively. The silica loading content in SBR/silica composites was determined using thermal gravimetric analysis. We also investigated curing characteristics, morphology, Payne effect of the Si-SBR composites according to the types of dispersant. As a result, we were able to compare the effect of silica dispersion in the composites.



Recent Publications

1. H Wang, Q Pan and G L Rempel (2012) Organic solvent free catalytic hydrogenation of diene based polymer nanoparticles in latex form: part I. preparation of nano substrate. J. Polym. Sci. Part A: Polym. Chem. 50(22):4656-4665.
2. Yan Gui et al. (2016) Preparation and performance of silica/SBR masterbatches with high silica loading by latex compounding method. Composites Part B: Engineering. 85:130-139
3. J L Valentin et al. (2006) Effect of a fatty amine on processing and physical properties of SBR compounds filled with silane-silica particles. Journal of Applied Polymer Science, 99(6):3222-3229
4. Mei Chun Li, Xin Ge, and Ur Ryong Cho (2013) Emulsion grafting vinyl monomers onto starch for reinforcement of styrene-butadiene rubber. Macromolecular Research. 21(5):519-528.
5. Siddharth A Butani and Sachin Mane (2017) Coagulation/flocculation process for cationic, anionic dye removal using water treatment residuals: a review. International Journal of Science and Technology. 6(4):1-5.

Biography

Min Seong Kim is currently pursuing Master's course in Materials and Chemical Engineering at Hanyang University, Republic of South Korea. He studied synthesis of silica dispersant for the tire tread rubber at the Korea Institute of Industrial Technology (KITECH), Republic of South Korea. He is mainly interested in researching new knowledge through the fusion of inorganic and organic materials.

corvo@kitech.re.kr