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UMAWASI BURANABUNYA: A STUDY OF PREPARATION OF CORE-SHELL LATEX PARTICLES BY HETEROCOAGULATION TECHNIQUE. THESIS ADVISORS: PRAMUAN TANGBORIBOONRAT, Ph.D., KRISDA SUCHIVA, Ph.D., 116 p. ISBN 974-664-215-4

Composite polymer particles having core-shell structure were prepared by using the heterocoagulation technique. Anionic poly(*n*-butyl acrylate) (PBA) and poly(styrene-acrylic acid) (PS-PAA) latices including cationic polystyrene (PS) latex were synthesized by emulsion polymerization with a batch process and their composite particles were investigated to be used as a model of natural rubber (NR) latex.

To obtain stable composite PBA/PS latex, nonionic surfactant (Tween 80) was required to be adsorbed on anionic PBA particle before blending with PS latex. Evidences from zeta potential, DSC and SEM showed the core-shell structure of PBA (Tween 80)/PS. A similar system was attempted by replacing PBA latex with a commercial polychloroprene (CR) latex. Composite CR/PS latex was not stable eventhough CR latex was adsorbed by Tween 80. Composite CR-based latex was successfully obtained when CR(Tween 80) was heterocoagulated with PS-PAA due to complex formation between PEO chains of Tween 80 and PAA chains of PS-PAA latex.

Finally, composite NR-based latex was prepared by heterocoagulation of CR (Tween 80) and NR particles at pH 2 and 8. Data from particle size distribution indicated that small NR particles contributed to the formation of composite core-shell latex. The presence of CR in the outer shell was confirmed by zeta potential measurement. Effects of blending ratio on the formation of composite NR/CR latex and on the improved oil-resistant property were also investigated. Results of the present study have shown that agglomerated latex particle having core-shell structure can be prepared by using heterocoagulation technique.