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KEY WORD: NATURAL RUBBER / STYRENE / METHYL METHACRYLATE / GRAFT / COPOLYMER / EMULSION PROCESS

PREECHA SOONTORNRUENGYOT : GRAFTING OF STYRENE AND METHYL METHACRYLATE ONTO

NATURAL RUBBER IN BATCH AND SEMI-BATCH EMULSION PROCESS. THESIS ADVISOR : PATTARAPAN

PRASASSARAKICH, Ph.D. 106 pp. ISBN 974-332-750-9.

The graft copolymerization of methyl methacrylate and styrene onto natural rubber in the emulsion process was studied. The graft copolymerization was carried out by varying initiator concentration, emulsifier concentration, reaction temperature, styrene per methyl methacrylate ratio, monomer per natural rubber ratio, type of monomer addition and reaction time. The grafting efficiency and graft ratio of grafted natural rubber determined by solvent extraction technique and monomers conversion were studied and discussed. The copolymer composition was determined by CHO analyzer and determined particle morphology by Transmission Electron Microscope showed the core-shell structure of grafted natural rubber latex. The grafted natural rubber latex was casted and compression molded into sheet, the mechanical properties were measured.

The optimum conditions was at 100 parts by weight of monomer per 100 parts by weight of natural rubber latex, the emulsifier contents of 1.5 parts by weight, the initiator contents of 1.5 parts by weight, time of add monomer addition 2 hours and temperature of 70 °C for 8 hours. The effects of styrene per methyl methacrylate ratio on tensile strength, elongation at break and Young's modulus were investigated. The appropriate amount of styrene per methyl methacrylate ratio which yield good mechanical properties were 25:75 and 50:50.

ภาควิชา.....

สาขาวิชา.....

ปีการศึกษา.....

ลายมือชื่อนิสิต.....

ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....