

CHARTCHAI POLSUKSIRI : A STUDY OF USING POLYTHIOL COMPOUNDS AND
2-ETHYL HEXYL ACRYLATE WITH CARBON TETRACHLORIDE AS SENSITIZERS
FOR RADIATION VULCANIZATION OF NATURAL RUBBER LATEX. THESIS ADVISOR:
ASST. PROF. CHYAGRIT SIRI-UPATHUM, 126 PP.

Experiments on using 3 different compounds of polythiol and an acrylate as sensitizer for radiation vulcanization were conducted. It was found that 1,4 butane diol propane tris-3-mercapto propionate showed the tendency to be a good sensitizer. The tensile strength of the rubber film prepared from the irradiated latex was found to be 14 MPa at sensitizer concentration of 1 phr and radiation dose of 45 kGy. As for 2-ethyl hexyl acrylate(2EHA), the maximum tensile strength of rubber film was found to be 23 MPa at concentration of 3 phr and radiation dose of 35 kGy. The mixture of 2EHA and CCl_4 at various ratio was also used as sensitizer. The optimum ratio was found to be 5:1 at concentration of 6 phr and radiation dose of 15 kGy. The maximum tensile strength was as high as 25 MPa. The study also revealed that the radiation vulcanized latex with crosslink density of about 18×10^{18} C.L./ cm^3 would give the rubber film of highest tensile strength.