

The effect of styrene monomer in the graft copolymerization of acrylonitrile onto deproteinized natural rubber

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Abstrak

Graft copolymerization of an acrylonitrile monomer onto Deproteinized Natural Rubber (DPNR) is an important process in the modification of Natural Rubber (NR) to increase its oil resistance. However, coagulation at the beginning of the process was a problem causing a copolymerization foil to occur. The presence of a styrene monomer is therefore expected to improve the emulsion condition so that coagulation can be prevented in the early reaction step. For comparison purposes, the processes with and without styrene were investigated. The influence of the concentration of styrene as well as the ratio of the DPNR:monomer on the stabilization process were also observed. The results showed that the addition of styrene could improve the stabilization process as proven by Fourier Transform Infrared Spectroscopy (FTIR). The presence of the functional group of C^oN at FTIR proved the production of the polyacrylonitrile in the mixture. The investigation showed that the concentration of styrene monomer, which led to the emulsion stability, is up to 1.5 wt% concentration of styrene at the ratio of DPNR:monomer (M) of 70:30 wt%.