

A NOVEL CURING PROCESS FOR THIN LATEX FILMS

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ABSTRACT

In the manufacturing process of vulcanized latex films, pre-preparation of number of separate dispersions to incorporate various vulcanizing ingredients into latex is a must. Improvement of the efficiency of this process could positively affect the curing rates and resource use, hence the productivity increase. A new procedure for the incorporation of vulcanizing ingredients into latex was tested as an attempt to shorten the total production time of the compounds without affecting the product performance. In the novel process, a dispersion of mixture of total curing ingredients was first prepared simultaneously maintaining their required ratios. This dispersion of curing agents mix was later added to latex compound. Thin vulcanized latex films were prepared. Their counterpart latex films were also prepared following the conventional compounding process (separate addition of dispersions of the ingredients). It was found that new ingredients incorporation procedure could be used to incorporate curing agents to latex without affecting the quality of latex compounds and its quality compared to the conventionally vulcanized latex compounds. The reduction of maturation and curing periods of latex compounds were exhibited when the novel procedure is adopted. In terms of mechanical properties, this method led a slight improvement in properties of the vulcanized films than that of the conventionally prepared ones. This study shows that dispersion mix with highest possible total solid content matured at ambient temperature (28°C) offers the optimum performance. The dispersion mix stored above ambient temperature yielded vulcanized films with poor mechanical properties and prolongs drying periods. It also shows that storage period of dispersion mix did not show any impact on the vulcanized film properties.

Keywords: *Curing ingredients, Dispersions, Latex thin films, Sulphur vulcanization*