EFFECT OF PRE-VULCANIZATION OF CENTRIFUGE NATURAL RUBBER LATEX ON SHRINKAGE ISSUE OF THE CONTINUOUS NATURAL LATEX FOAM SHEET MANUFACTURING PROCESS

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ABSTRACT

Shrinkage is an important characteristic, because it determines the size of the product and density of the foam sheet, which is usually specified by the customer. The problem of the shrinkage of latex foam sheet is very complex.

Due to this shrinkage, there is a high wastage of natural rubber foam. Density variation, Hardness variations and foam sheet thickness variation occurs due to shrinkage of latex foam.

The Research was conducted to identify the Optimum Pre-Vulcanizing Time to Reduce Shrinkage of the Continues Natural Latex Foam Manufacturing Process without effecting physical properties.

Experiments were established to fulfil the objectives of the research. Experiment was compromised with five treatment levels having 20, 30, 40, and 50 Pre-Vulcanizing hours with other compounding ingredients. Each treatment was replicated 4 times and CRD was adapted as the experiment design. Three physical properties (hardness, density, shrinkage and compression set) were determined and the most desirable Pre-Vulcanizing Time was selected.

The results revealed that the shrinkage of natural rubber foam can be reduced by increasing the pre vulcanization time. The tested properties; hardness, compression set and density were also affected by changing pre vulcanization time of latex. The treatment 03 (40 hours of pre vulcanization time) was selected as the most suitable pre vulcanization time in producing natural rubber foam without affecting other properties. The finding of the study can be further practice in the industry to reduce shrinkage of Natural Latex Foam by reducing the cost of production while meeting the specifications of the customer.