

**TITLE** IMPROVING THE MECHANICAL PROPERTIES OF SHORT PINEAPPLE LEAF FIBER REINFORCED NATURAL RUBBER BY BLENDING WITH ACRYLONITRILE BUTADIENE RUBBER

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**ABSTRACT** This work proposes a simple method for improving the rubber to filler stress transfer in short pineapple leaf fiber-reinforced natural rubber (NR). This was achieved by replacing some of the non-polar NR by polar acrylonitrile butadiene rubber (NBR). The amount replaced was varied from 0% to 20% by weight. The mixing sequence was designed so that the fiber would be coated with polar NBR before being dispersed in the NR matrix. A comparison system in which the mixing was carried out in a single step was also examined. Despite the fact that the two rubbers are immiscible, it was found that significant improvement of the stress transfer in the low strain region can be obtained. The mixing sequence affected the mechanical properties of the resulting composites. It is concluded that frictional stress transfer between the immiscible rubbers contributes more to the total stress transfer than does the frictional stress transfer between non-polar NR and polar cellulose fiber.