UNIVERSITI TEKNOLOGI MARA

EFFECT OF COCONUT SHELL POWDER (CSP) ON CURE CHARACTERISTICS, PHYSICAL AND MECHANICAL PROPERTIES OF NITRILE RUBBER (NBR) COMPOSITES

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Coconut Shell Powder (CSP) was used as reinforcing agent in Nitrile rubber (NBR). Untreated CSP and alkali treated CSP were used as filler materials in the preparation of NBR composites. The influence of filler loading alkali treatment on the cure characteristics, physical and mechanical properties of the composites were analyzed. The characteristics of the untreated and treated CSP were confirmed from FTIR studies through the shifting and broadness of the absorption peak. The NBR composites incorporated with treated CSP (10 phr) achieved the optimum cure time, the highest tensile strength (2.80 MPa) and elongation at break (128.12 %). However, the hardness and the tensile modulus of the NBR composites increasing with the addition of the treated CSP filler loading. The alkali treatment on CSP can be concluded to enhance the curing characterization, physical and mechanical properties of NBR composites.

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