



## Reinforcement of Acrylonitrile Butadiene Rubber (NBR) by Bakelite Moulding Powder in: In Comparison with Cashew Nut Oil Modified Phenolic Resin

Acrylonitrile butadiene rubber (NBR) is a synthetic rubber widely used in many applications in which high resistance to oil and abrasion is required. By adjusting the filler content, a variety of hardness levels of NBR vulcanisates could be achieved. However, in certain applications where the extremely high hardness level (>85 Shore A) is essential such as coupling generator for marine vessels, the sole addition of highly reinforcing fillers such as carbon black or silica might cause processing difficulty, which could be overcome by the use of reinforcing phenolic resin. Although bakelite molding powder has a wide range of applications in the plastic industry, little attention is given to the application in the rubber industry. This work explores the use of low-cost bakelite powder as a reinforcing filler for NBR, and aims to investigate the effect of bakelite powder on the properties of filled NBR. The cashew nut oil-modified phenol-formaldehyde resin is also of interest.

The research was conducted mainly at the Rubber Technology Research Centre, Faculty of Science, Mahidol University, and collaborated with the National Metal and Materials Technology Center (MTEC). Associated SDG goals are Industry, innovation and infrastructure (9), and Responsible consumption and production (12).

### Reference:

U. Thepsuwan, W. Intiya, P. Sa-nguanthammarong, P. Saeoui, **C. Sirisinha** and P. Thaptong, Reinforcement of Bakelite Moulding Powder in Acrylonitrile Butadiene Rubber (NBR): In Comparison with Cashew Nut Oil Modified Phenolic Resin, *Scientific Review*, 6 (4), 28-35, 2020.

