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Quartz impregnated nitrile butadiene rubber (NBR) for high ware resistant applications; preliminary study

Manthrirathna M.A. N. C.*, Kadanapitiya S.M., Jayasinghe, N. and Francis P.

Gem & Jewellery Research and Training Institute, Sri Lanka

Mineral powders are used as fillers in the preparation of polymer composites. In this study, quartz powder was added to nitrile butadiene rubber (NBR) and ware resistance of the resulting composite was measured by changing the amount of quartz powder. NBR was used as the matrix and quartz powder was added as the filler with variation of filler content viz. 5, 10, 15, and 20 (%wt.). To maintain the strength of the polymer composite, quartz powder with < 63μm (63 mesh sizes) was selected. The composite was prepared using film preparation method. EN 388 abrasion test method was used to measure the ware resistance of the composite. The result showed that the optimum ware resistant is achieved with 5 (%wt.) filler content. Therefore, quartz impregnated NBR could be introduced to polymer industry as a cost effective, high abrasion resistance and eco-friendly composite.

Keywords: Composite, Mineral, abrasion, filler.

**Corresponding author: nadeekamn@gmail.com*