

## TENSILE BEHAVIOUR OF COCOA POD FILLED POLYPROPYLENE COMPOSITES

Onuegbu, G. C., Obasi H. C. & Onuoha F. N.

Department of Polymer and Textile Engineering

Federal University of Technology, Owerri Imo State, NIGERIA

Corresponding Author Email: [gc.onuegbu@yahoo.com](mailto:gc.onuegbu@yahoo.com)

### ABSTRACT

The tensile behaviors of polypropylene filled with cocoa pod have been investigated at filler contents of 0, 1.33, 2.67, 4, 5.33, 6.67 wt %. The cocoa pod was sieved to two different particle sizes namely 15 and 25 $\mu$ m respectively. The effect of maleated polypropylene (MAPP) compatibilizer, filler content and filler particle size were determined. The compatibilized and uncompatibilized polypropylene composites at a given cocoa pod filler particle sizes were prepared using an injection moulding machine. Results showed that the tensile strain, true strain at yield, true strain at maximum load and true stress all decreased with increases in filler content but tensile stress, energy at yield, modulus and tensile extension at yield decreased with increases in filler contents. All the tensile properties studied decreased with increases in MAPP content and filler particle size.

**Keywords:** Filler, Composites, Compatibilizer, Cocoa pod, particle size, polypropylene, maleated polypropylene and textile properties.