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Egg Shell Powder Reinforced Polypropylene (PP) Composite: Effect of Mechanical and Heat Capacity

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ABSTRACT

The mechanical properties of Polypropylene (PP): Egg Shell powder composite was assessed with respect to the effect of filler content shells powder Egg varying from 1% to 10% by weight of the composite, at particular size (<212) μ m were investigated through several variables, such as, tensile strength (σ), tensile strain at break (ϵ _B) and Young's modulus(Y). Apparent amelioration in the mechanical parameters has recorded best ratios 5% and 7% weight. The mechanical properties of prepared film have examined through diverse parameters concerning the elastic deformity based on calculated the load – elongation properties. The conduct of the stress - strain curve was investigated in terms of the cold drawing model. The elastic behavior decreased at 5% composite Egg Shell powder. The specific heat capacity of Polypropylene, obvious an increase of the composite specific heat capacity using egg shell content.

1. Introduction

Polypropylene (PP) is widely used as a polymer in the world due to its widespread availability, and low cost of monomer, inexpensive of industrialization, and has distinct features. These characteristics can be enhanced to be suitable for a broad spectrum of applications. Commercial fabrication techniques can be used to modify Polypropylene. Examples of important applications of polypropylene involve possible usages to manufacture pipes, package films, tanks, monofilaments, seat covers, ropes and in washing machines. In 2001, approximately, 30,000,000 tons were consumed in the worldwide. [8, 9].

Polypropylene filled with particulate fillers has received much interest both in an academic research and industry due to the polypropylene has a feasibility to allow for accepting various kinds of natural and non-natural fillers. Fillers such as mica, kaolin, Ca(CO₃)₂ and talc have

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