CHARACTERISTICS OF THE CERAMIC SHEET HYBIRD BIOCOMPOSITE

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Abstract

Most polymer composites commonly used in automotive or construction industries employ glass fiber as reinforcement material. However, they cause many problems in terms of energy and environment, because the glass fiber is harmful to the human body and unsuited to recycling. Recently, biocomposites using natural fiber as reinforcement material are studied in order to reduce the use of harmful glass fiber. Being lighter than glass fiber-reinforced polymer composites by 30% or more, biocomposites are cutting-edge new material that can lead to energy saving through improved fuel efficiency (1.6%) when used for automotive parts. However, It is necessary to increase thermal resistance of the biocomposite for stable use as automotive or building indoor/outdoor materials. Therefore, We will increase thermal resistance by make the biocomposite having ceramic sheets on one or both sides. As a result, incombustible of the ceramic sheet hybrid biocomposite was more than 50% increased. Further, it has superior storage modulus, dimensional stability and flexural properties and processable into various structures. Thus, it is very useful for automotive or building indoor/outdoor materials.

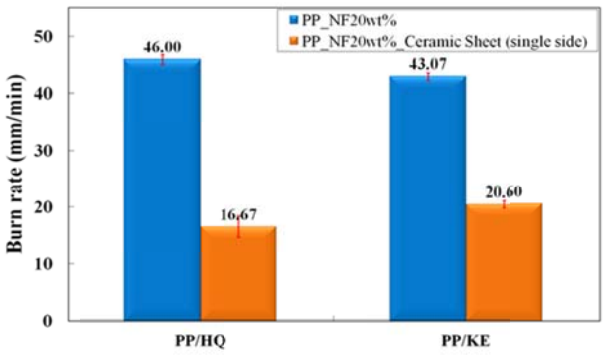

Figure 1. Results of burning test on natural fiber reinforced ceramic sheet hybrid polypropylene biocomposites.

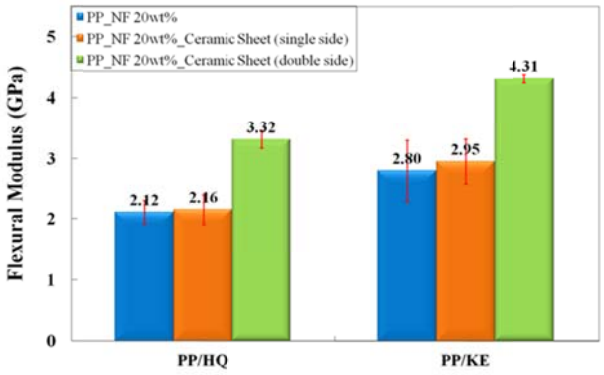

Figure 2. Results of flexural test on natural fiber reinforced ceramic sheet hybrid polypropylene biocomposites.

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