



Investigation on Mechanical Properties and Fracture Mechanism of Carbon Fiber and Glass Fiber Composite at Different Curing Temperature

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Abstract. Weight reduction is one of the big challenges in the auto industry. In the aerospace industry, the high modulus of composite material makes weight savings to replace alloys such as aluminium and titanium. It is one way to reduce fuel consumption and reducing emissions in vehicles by using composite. Among them, carbon fiber and glass fiber are the most useful materials in composite to reduce the weight in vehicles not only in the automotive field but also in aircraft, marine, medicine, sport, etc. In this study, Hand Lay-up (Wet lay-up) method is used to fabricate carbon fiber and glass fiber composites with different curing temperature 30°C (the equivalent of room temperature) until it is dry and 80°C for curing 6 hrs. The strength of carbon fiber and glass fiber composites were increased over 10% and the hardness of carbon fiber composite was also increased two times at 80°C curing temperature. Furthermore, the fracture mechanism of carbon fiber and glass fiber composites were also observed by using Scanning Electron Microscopy (SEM) image processing method.

Keywords: Composites, Curing temperature, Mechanical Properties, Fracture Mechanism.