

An Analysis on Fibre-Reinforced Composite Material Usage on Urban Furniture

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Abstract : In this study, the structural properties of composite materials with the plastic matrix, which are used in body parts of urban furniture were investigated. Surfaces of the specimens were observed by scanning electron microscopy (SEM: JSM-5200, JEOL) and Climatic environmental test analyses in laboratory conditions were used to analyze the performance of the composite samples. Climate conditions were determined as follow; 3 hour working under the conditions of -10 °C heat and 20 % moisture, Heating until 45 °C for 4 hours, 3 hour work at 45 °C, 3 hour work under the conditions of 45 °C heat and 80 % moisture, Cooling at -10 °C for 4 hours. In this cycle, the atmospheric conditions that urban furniture would be exposed to in the open air were taken into consideration. Particularly, sudden heat changes and humidity effect were investigated. The climate conditions show that performance in Low Temperatures: The endurance isn't affected, hardness does not change, tensile, bending and impact resistance does not change, the view isn't affected. It has a high environmental performance.

Keywords : fibre-reinforced material, glass fiber, textile science, polymer composites

Conference Title : ICCBES 2018 : International Conference on Chemical, Biological and Environmental Sciences

Conference Location : Bali, Indonesia

Conference Dates : October 22-23, 2018