



Utilization of Waste MDF Dust in the Manufacture of Polyurethane Based Composites for Furniture Industry[#]

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Received June 01, 2014; Accepted June 06, 2014

Abstract –In this study, medium density fiberboard (MDF) dust generated during furniture manufacturing and polyurethane mixture were used for the manufacture of polyurethane based (PU) composites. Various amount of dried MDF dust and polymeric mixture (PU, polyol and hardener (1:1:0.20) were first mixed, then poured into rectangular shape silicon mold and finally set for drying at elevated temperature for 24 hours. The effects of MDF dust loading (0, 7.5, 15 and 22.5 phr) on the mechanical properties of the manufactured composites were investigated. Morphology of the samples were also studied using DinoCapture 2.0 and scanning electron microscopy (SEM). According to test results, the addition of MDF dust was significantly affected the tensile modulus and elongation at break values but did not significantly change the rest of the mechanical properties. It can be concluded that PU-based composite materials having up to 22.5 phr MDF dust can be manufactured without significantly diminishing the selected mechanical properties.

Keywords: *polyurethane, medium density fibreboard, composites, mechanical properties, morphology.*

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[#] This paper has been presented at (IESSV) 2014, Van, Turkey