COMPOSITES MADE OF BOILER ASH AND MAUVE FIBERS

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Abstract: This paper analyzes the mechanical traction property and morphology of composites with residues of boiler ash and mauve fiber. The mauve fibers were brought from the region of Castanhal-PA provided by the Textile Castanhal Company, which was collected after the extraction process and kept at room temperature and humidity. The proportions of ash on the composites were placed in 10 % and 20 % relative to the total weight of the composite. The fiber did not receive any kind of surface treatment and the proportion used was fixed in 5 % of the total mass. It was used a manual manufacturing method on the production of the composites. The polymeric matrix used was the unsaturated isophthalic polyester resin combined with a cobalt-based accelerator and an initiator. The laminates were produced in the shape of rectangular plates in a metal mold. The mauve fibers were randomly dispersed within the matrix as well as the ash. The tensile test was based on the ASTM D 3039 standard and a morphological analysis by scanning electron microscopy was performed. The composites with 10 % ash / 5 % fibers presented better mechanical performance. The analyses of the surfaces fracture shows the presence of mechanisms failure, such as pull out, breakage and detachment of the fiber out of the matrix.

Keywords: Materials, mechanical properties, natural fibres, characteristics