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THERMAL CHARACTERIZATION OF EPOXY MATRIX COMPOSITES REINFORCED WITH PURE RAMIE FABRIC

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The ramie is a natural vegetable fiber, whose cultivation have being extinguished in Brazil every year. The use of ramie fabrics in polymer matrix composites aims to stimulate the crop growing of the plant and make it competitive compared to other natural fibers composites. The determination of their technological properties is an important tool for the manufacture of these new materials. Thus, this study aimed to thermally characterize the DGEBA / D230 composite with different formulations and evaluate the thermal stability and the area of interface between the fabric fiber and polymer matrix through the thermogravimetric technique. The composites investigated were formulated with 1, 2, and 3 layers of ramie fabric. The specimens were obtained by placing alternating layers of ramie fabric and still liquid resin with hardener D230 into the mold. After, the specimens were cured at room temperature and tested, also at room temperature with the increase of fabric volume fraction. It happens because the cellulose present in the matrix has a lower degradation temperature, which reduces the degradation temperature of the composite. Also, it is observed "shoulder" peaks, due to the presence of more substances (hemicellulose, cellulose, lignine, etc) if compared with the pure resin.