

Characterization of polyurethane composites reinforced with loads aiming to increase the mechanical strength

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Composites are conjugated materials formed by at least two phases, a polymer matrix and another stage booster [1]. That reinforcement stage can improve different structural properties of composites, such as weight reduction, chemical resistance, high mechanical strength and rigidity, according to these properties, the polymer composites have a wide range of applications as in the furniture sector, civil construction, aeronautical, etc [2] [3]. In the present work it was developed characterization of a product to the polymer industry, formed by a polymeric composite reinforced with loads of residual origin, aiming to gain of mechanical strength. Wastes used were aluminum (Fig. 1a), originating in the shoe industry, rice husk and rice husk ash, from agricultural sources, with granulometry of less than 300 $\mu\text{m}/\text{mm}$. In obtaining the samples was used concentration of at most 1% of residue. The structures of different composites obtained were analyzed by scanning electron microscopy, shore hardness and deformation by dynamic compression. To correlate the results, was used a standard composite, formed of a polyether prepolymer with an catalyst elastomer, resistant to heat (Fig. 1b). The results showed that it is feasible the obtaining polymer composites with residues tested. The development this work provides definitive solutions to issues of waste deposited in the environment.

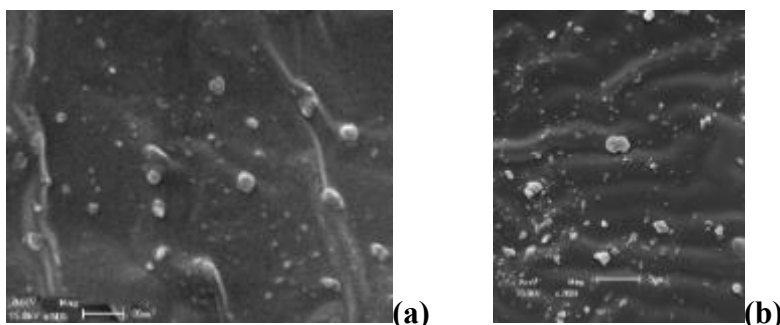


Figure 1: SEM image of the composite obtained. (a) polyurethane composite reinforced with aluminum; (b) polyether prepolymer composite with an catalyst elastomer.

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