

FRACTURE BEHAVIOR AND MECHANICAL CHARACTERIZATION OF A COMPOSITE ORTHOPEDIC USE IN THE TWO DIRECTION OF FLOW MOLDING

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Abstract : A standard tensile test was carried out on prismatic specimens of glass-perlon reinforced acrylic resin laminate composite material of orthopedic use, developed by the National Office Equipments and Accessories for People with Disabilities, ONAAPH Annaba (Algeria). The measurement results of the Young's modulus and the fracture strength show a large scatter characteristic of these materials and are influenced by the cutting direction of the samples compared to the direction of molding. The use of the probabilistic two parameters Weibull's model made it possible to characterize brittleness and the fracture behavior of these materials and quantitatively to describe the probabilistic aspect of the latter. A report of the principal mechanisms responsible of the fracture is drawn up according to microscopic observations of the fracture topographies of the broken samples. weibull, glass, perlon, acrylic, orthopedic.

Keywords : Weibull, glass, perlon, acrylic, orthopedic