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Study of the resilience of a composite materialintended for the orthopedic prosthesis of a tibia

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Abstract : This approach is based on the mechanical characterization of a biomaterial which is an organiccomposite with a thermosetting polymer matrix reinforced with a glass fiber; this composite has beenproduced by a conventional casting method. Currently, composite polymer-matrix objects occupy animportant place in the aeronautics, automotive, medical industry etc……, for this purpose, we areinterested in the study of a mechanical property of a thermosetting polymer matrix compositereinforced with glass fiber, this composite is intended for the orthopedic prosthesis of a tibia, thisproperty called resilience. For so doing, we have realized a Charpy shock test on a sample of thepolymer matrix composite reinforced with a glass fiber for the orthopedic prosthesis of a tibia. Wehave also supported this study by a hardness test and microscopic characterization (SEM) to revealthe microstructure of the composite.

Keywords : composite – mechanical property – resilience –hardness – microstructure