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**Assessment of impact resistance in polymeric composites reinforced with aramid and superelastic shape memory alloys**

Pereira, K.D.(1); Batista, A.C.M.C.(1); Diniz, D.D.S.(1); Simoes, J.B.(1);  
(1) UFERSA;

This study assessed the impact resistance of polymer composites reinforced with aramid and shape memory alloys, following the ASTM 6110-10 standard. The laminates consisted of 12 layers of aramid, with NITI wires and springs woven into the top layer of the laminate. The results revealed that the composites reinforced with NiTi wire achieved 31J, representing a 121% increase compared to the Aramid configuration and a 63% increase compared to the Aram-Springer e Aram-Wire configuration. Furthermore, the use of the wire demonstrated average energy absorbed per gram of 3J/g, corresponding to a 36% increase compared to the Aram-Springer e Aram-Wire configuration and a 76% increase compared to the Aramid configuration. This results in a material with a better balance between weight reduction and increased energy absorption capacity. These findings suggest that incorporating superelastic NiTi wires can enhance the performance of composite materials, enabling a wide range of applications.