

ABRASIVE EROSION BEHAVIOR OF PLASTIC PARTS OBTAINED BY FUSED FILAMENT FABRICATION

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The use of a particular material for the manufacturing of a part is most often influenced by the properties of the material and the quality that will be reflected in the behavior of the part obtained. In the case of plastics, their diversity and specific characteristics, which are sometimes influenced by the additives used, do not ensure a resistance to mechanical stress and some mechanical properties specific to metallic materials. For such reasons, the use of plastics is limited, but aresearch and development in this area show that there is potential to improve the properties of plastics. In order to observe the characteristics of a material and the performance in use it can have, laboratory tests and research are important, and the observations are extremely useful. Although it is considered that plastics may have a different behavior from that of a metallic material, it would be useful to know better the behavior of a plastic in a test at abrasive erosion. For this purpose, experimental tests were designed and performed to evaluate the wear resistance of some samples obtained by 3D printing. By the mathematical processing of the results, it was possible to identify empirical mathematical models capable of providing information about the intensity of the influence of different factors on the abrasive wear resistance of the materials incorporated in the samples obtained by 3D printing.