

عنوان مقاله:

Effect of Layer Thickness and Infill Percentage on The Mechanical Characterization of Fused Deposition Modeling
ABS specimens

محل انتشار:

شانزدهمین همایش ملی و پنجمین کنفرانس بین المللی مهندسی ساخت و تولید (سال: 1398)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Amir Shafaat - MSc, Department of Mechanical Engineering, Arak University of Technology, Arak, Iran

Hamidreza Rezaei Ashtiani - Associate professor, Department of Mechanical Engineering, Arak University of
Technology, Arak, Iran

خلاصه مقاله:

Fused deposition modeling (FDM) is a 3D printing process that produces parts by heating, extruding and depositing the thermoplastic polymers. FDM-fabricated products are becoming increasingly popular in various industries such as medical, electronics, automobile, pharmaceutical. Acrylonitrile butadiene styrene (ABS) is a polymer that is widely used as a filament in the FDM machine. Meanwhile, the findings on the ABS properties are still varied and incomplete, and it is necessary to take additional studies to determine their properties before using them in various applications. It must, therefore, have a thorough understanding of their mechanical properties. This study was performed using the FDM system on a collection of standard specimens from ABS. A detailed mechanical property analysis was carried out to determine the effect of the density of infill and the thickness on the yield strength, fracture strain, and toughness (energy absorption) of the layer of ABS using a tensile test. It is found from the result analysis that the density of infill and the thickness of the layer have an important effect on the properties of the tensile. Results of the tensile test show that parts printed with 100% infill density and 0.1 mm layer thickness achieved optimum ABS filament parameters

کلمات کلیدی:

Fused Deposition Modeling (FDM), Acrylonitrile Butadiene Styrene (ABS), mechanical properties, layer thickness, infill percentage

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