# Mechanical Properties of 3D Printed Multi-Component Structures

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**Abstract:** The main purpose of this research is to develop approaches for enhancing layers adhesion in 3D printed objects to expand the applications of the printing technique to multi-component hybrid structures. Specifically, in this research, PLA (Polylactic Acid) and PETG (Polyethylene Terephthalate Glycol-modified) multi-component structures were fabricated by a dual-feed 3D printer utilizing fused deposition modeling (FDM) technique. Mechanical properties of the structures were characterized with Dynamic Mechanical Analysis (DMA). Heat treatment and blend filaments insertion were utilized to modify mechanical performances of the printed samples. In fact, the heat treatment was found to improve mechanical properties of PLA/PETG multi-component structures quite significantly. The incorporation of PLA/PETG blend filaments at PLA/PETG interface enhanced the bonding between layers as well.