

Effect of Press Force in Tensile Strength and Surface Quality of Press Formed Wood Plastic Composite Products

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Wood Plastic Composites are developing rapidly in recent years and having a fast market growth. Such products can include recycled polymers and fibers as material ingredients. Currently, majority of the product shapes are limited to simple deck profiles. With geometries that are more complex, expensive injection molding is the most commonly used method of manufacturing. The injection molding requires high pressures and demands complex tool arrangements. With press forming method, the forming pressure and the length of press cycle can be reduced with a simpler and less expensive toolset. This article investigates the effect of press forming force of thermoplastic in WPC granules pressed into ASTM D638 tensile dog bone shaped specimens. Tensile strength, modulus of elasticity and yield point of the created samples are tested according to the standard and compared to the commercially available materials. In addition, the surface quality of the measured samples is measured using a 3D profilometric device. From the results it can be determined that the press forming method is a capable way to produce complex geometries with fewer demands for the toolsets.