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THE EFFECTS OF INJECTION MOLDING CONDITIONS ON DIMENSIONAL ACCURACY OF MOLDED PLASTIC PARTS

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Plastic injection molding is a process where polymer melt is injected into a mould cavity and solidifies to form a plastic part. The dimensional accuracy of molded plastic parts are generally affected from the processing conditions. In this study, the relationship between the molding conditions and the dimensional accuracy of injection molded plastic parts were experimentally examined using Taguchi method. Six molding factors namely: the injection pressure, the melt temperature, the mold temperature, the packing pressure, the packing time and the cooling time; and three levels of the each of these factor were examined. The rectangular in shape flat parts and tensile samples were molded using high density polyethylene (HDPE), polypropylene (PP), polystyrene (PS) and acrylonitrile-butadiene-styrene (ABS) samples. It was concluded that, the effective factors are the packing time, the melt temperature and the packing pressure on dimensional accuracy of the molded plastics.