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Experimental Study of Mechanical Properties of Type Linear Low Density Polyethylene and Mold Design

***Abstract-**In general, the manufacture of plastic materials is commonly in the world due to their applications. Plastic is light weight, cheap, and able to be used in different industries, for example parts of automotive and home tools. This research represents a challenge on how to design and manufacture a changeable mold. First, a mold was designed by the Auto CAD program and then manufactured in the workshop. The mold consists of three parts, the middle part has changeable cavity. The mold was cooled by worm net pipes embedded into the third part. All specimens were manufacture in this mold. The injection plastic flow is perpendicular on mold. The goals of this research are to design and manufacture a mold and to determine the mechanical properties of linear low density polyethylene. Three types of test were executed, tensile, impact and bending. The results of tensile test showed that the tensile strength value is 15 MPa, Young's modulus is 0.18 GPa, yield stress is 12 MPa, and Elongation to break is 70.88 mm. From impact test, the impact strength is about 193.75 KJ/m², while in bending test, the flexural strength is about 18 N/mm² and the shear stress is 1.5 N/mm².*

***Keywords-** Linear low density polyethylene, Tensile test, Impact test, Bending test, Mold*

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