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| Thesis Title   | Influence of Compatibilizers and Irradiation on<br>Mechanical Properties of Polyolefin Blends |
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### **ABSTRACT**

In this research, study the mechanical properties between polypropylene (PP) with low-density polyethylene (LDPE), polypropylene with linear low density polyethylene (LLDPE) and polypropylene with high density polyethylene (HDPE) . The samples were prepared by melt blending in a twin-screw extruder followed by injection molding. The compatibilization of polymer blends was accomplished through the addition of poly (propylene-block-ethylene) copolymer, poly (propylene-random-ethylene) copolymer and gamma irradiation. The result showed the mechanical properties depended on the types and the ratios of polymer blends. The samples of PP30/LDPE70 and PP30/LLDPE70 blends corresponded to a maximum impact strength. Both copolymers and the radiation dose range of 10-30 kGy did not improve the mechanical properties of the blends. The radiation dose range of 50-250 kGy produced crosslinking. The tensile strength, impact strength and elongation at break decreased because of higher crosslink density. The suitable dose to give the maximum modulus of PP50/LDPE50 was 150 kGy.