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## **Influence of Triallyl Cyanurate as Co-Agent on Gamma Irradiation Cured High Density Polyethylene/Reclaimed Tire Rubber Blend**

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### **Abstract**

Utilization of waste from tire industry as reclaimed tire rubber (RTR) by formation of blends with high density polyethylene (HDPE) is great area to be focused. Enhancement of properties by the addition of triallyl cyanurate (TAC) as a co-agent with 1, 3 and 5 % to blend of HDPE 50 weight percent and RTR 50 weight percent in presence of gamma irradiation curing were investigated. Specifically, mechanical and thermal properties were studied as a function of amount of TAC and gamma irradiation dose in range of 50-200 kGy. The resultant blends were evaluated for the values of impact strength, gel content, thermal stability, tensile properties, rheological properties and morphological properties with increasing irradiation dosage and TAC loading. The mechanical properties tensile strength, hardness, impact strength of blend containing 3% of TAC were substantially increased with increasing irradiation dosage up to 150 KGy. Rheological analysis has shown increase in viscosity with increase in TAC loading up to 3% and 150 KGy irradiation dosages. 3% loading of TAC lead to better set of properties with 150 KGy gamma irradiation dosage.

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