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EFFECT OF THERMAL ANNEALING ON THE DIRECTIONAL MECHANICAL PROPERTIES OF EXTRUDED POLY PROPYLENE SHEETS

reza mirabzadeh, ehsan soodmand, amir behshad,

Mechanic, ISLAMIC AZAD UNIVERSITY OF SHADEGAN

**Corresponding author:reza.mirab@yahoo.com*

Extruded Poly Propylene samples are annealed by heating in oven with various parameters including annealing time, annealing temperature and post annealing cooling rate. This process helps reduce in internal stresses formed during fabrication (e. g. extrusion) and eliminate macromolecules orientation resulting in more homogenous mechanical properties. These samples are heated to a temperature at which the macromolecules have enough mobility to allow them to reorient to a configuration with less residual stress. Because that Poly Propylene, should be heated to a temperature at which retarded crystallization or recrystallization. After this process, samples for impact test are prepared according to ASTM D256. The results show that annealing can increase the impact strength of samples, especially in longitudinal direction and in some conditions a reduction in impact strength of annealed samples observed in Latitude direction, which can be due to the elimination of longitudinal orientation that occurs normally in extruded parts. Key words: Poly Propylene, extrusion, annealing, impact properties