

PREPARATION and PROPERTIES of POLYESTER Based Thermoplastic Elastomer

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The polyester elastomers contain repeating high melting blocks which are capable of crystallization (hard segments) and amorphous blocks having a relatively low glass transition temperature (soft segments). By varying the ratio of hard to soft segments polyesters ranging from soft elastomers to relatively hard elastoplastics can be obtained. In this study a series of polyester based thermoplastic elastomers were prepared by melt polymerization using DMT and butanediol as monomers of hard segments, PTMG as a monomer of soft segments, pentaerythritol to give a branched unit. Effect of pentaerythritol (4-functional monomer) on the elasticity and thermal behavior of thermoplastic elastomer film was investigated. The elasticity, viscosity and thermal properties depend on the extent of reaction and branched unit contents.

The composition of samples

SAMPLE	COMPOSITION (PTMG/DMT/BD/PEO)
T1	0.1 / 1 / 0.9 / 0
T2	0.1 / 1 / 0.8 / 0.1
T3	0.1 / 1 / 0.7 / 0.2
T4	0.1 / 1 / 0.6 / 0.3
T5	0.1 / 1 / 0.5 / 0.4

PTMG : Polytetramethyleneetherglycol

DMT : Dimethylterephthalate

BD : Butanediol

PEO : Pentaerythritol