

STUDY OF THE THERMAL STABILITY FOR SHAPE MEMORY POLYMERS

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Abstract. Shape memory polymers represent a new category of new intelligent materials that have the ability to respond to and recover from large deformation after application of a particular external stimulant. These materials show enormous potential for innovation because from their original properties and behaviors, they can be used in many applications and technological challenges. In order to use these materials for very specific applications, the optimization of their parameters responsible for triggering the memory effect is a necessity that led us to study them. The TAM III micro-calorimeter was used to evaluate the thermal stability of several SBS/PLA samples as well as virgin mixture and mixture which was tested for shape memory effect at various temperatures. This is by estimating the heat flux values derived from the thermograms obtained at the end of the experiments.

The choice of temperatures is related to the transition temperature of this mixture.

Keywords: Shape memory polymer, thermal stability, styrene-butadiene-styrene, Polylactic acid.