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# Impact on thermomechanical behaviour of a maleic anhydride grafted ABS on ABS/PC multi-layered blends

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The significant increase of Waste Electric and Electronic Equipment (WEEE) has led to an important research in upgrading recycled engineering plastics by means of a blending technique. In particular, there is an interest in studying the properties of ABS/PC blends, the two most important components of WEEE, at ABS rich compositions, according to the generation ratio of waste [1].

Since ABS and PC are immiscible, the final properties depend to a large extent on the flow-induced morphology [2]. In order to better control the final blend morphology of injection molded samples, we propose a two-step approach: the first step consists in producing pellets with multilayered structure, using a multilayer coextrusion device. During the second subsequent step, the pellets are injection molded, with temperature conditions chosen to minimize the deformation of the created structures. The effect of a compatibilizer, namely, an ABS grafted with maleic anhydride (ABS-g-MA) [3] on the thermomechanical properties and morphology has been investigated.

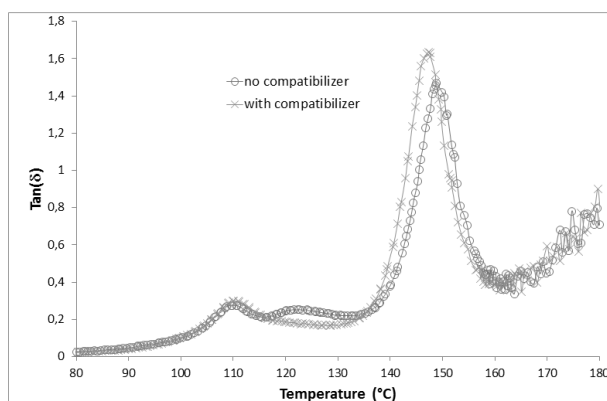


Figure 1. Tanδ as a function of temperature for ABS/PC blend (70/30 wt%) with and without the addition of ABS-g-MA

1. Barthes, M.-L.; Mantaux, O.; Pedros, M.; Lacoste, E.; Dumon, M. *Advances in Polymer Technology* 31, (4), 343-353.
2. O-Charoen, N.; Leong, Y. W.; Hamada, H. *Polymer Engineering & Science* 2008, 48, (4), 786-794.
3. Elmaghor, F.; Zhang, L.; Fan, R.; Li, H. *Polymer* 2004, 45, (19), 6719-6724.