

# **IMPACT ASSESSMENT OF EXPERIMENTAL OLEFIN-MALEIC-ANHYDRIDE COPOLYMER BASED ADDITIVES IN ELASTOMER CONTAINING WASTE POLYETHYLENE**

Lilla Simon-Stöger and Csilla Varga

MOL Institutional Department of Hydrocarbon and Coal Processing,  
University of Pannonia, Veszprém, Hungary

Extreme growth in the amount of waste tyres around the globe was recorded and large amounts of technical rubbers, such as EPDM (ethylene propylene diene monomer) are also generated, that completely differ in chemical structure. Limiting factor of different structured waste elastomer can be dissolved with incorporation them collectively in polymer blends to boost or retain mechanical properties, since there are lots of areas requiring cheaper thermoplastic elastomers with proper chemical resistance and good mechanical properties. Moreover, the dependence from the accessibility of the raw materials can be moderated in the aforementioned way. Combining waste elastomers in waste thermoplastics might offer a solution on utilization of several waste rubbers parallely implementing of an upcycling process. Experimental olefin-maleic anhydride copolymer based additives have been introduced into w-HDPE (waste high density polyethylene)/GTR (ground tyre rubber), w-HDPE/EPDM and w-HDPE/GTR/EPDM in 0.2 wt% while elastomer concentration has been varied. For comparison of the effects, commercially available compatibilizer and as commercial elastomer, influence of EVA (ethylene vinyl acetate) has also been studied. Tensile and Charpy impact tests of have been carried out in that part of our experimental work.