# Thermoplastic vulcanizates from recycled polyolefins, EPDM and reclaimed ground tire rubber

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**Abstract**

The new technology of producing of thermoplastic vulcanizates (TPV) based on recycled polyolefin, $PO^R$ ($HDPE^R$, $LDPE^R$, $PP^R$) and reclaimed ground tire rubber ($GTR^R$) has been developed. The new thermal-mechanical-chemical method of GTR reclamation consisting of GTR pre-heating with active unsaturated agent at 170$^o$C followed by the rolling was used. The TPV samples were obtained by mixing of $PO^R$ and reclaimed $GTR^R$ in the presence of EPDM in Brabender type mixer or extruder. Using of non-reclaimed GTR in TPV formulations leads to a drastic reduction in mechanical characteristics of the resulting product. Contrarily, introduction of reclaimed $GTR^R$ has allowed us to keep the mechanical properties of final TPV on the level of basic (for example $HDPE^R$/EPDM) TPV. The new TPV has additionally demonstrated high thermal stability, high chemical resistance, and high stability to multi-reprocessing and to hot ageing. Having the basic characteristics on the level of well-known SANTOPRENE the new product is twice cheaper.