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收稿日期:2014-11-02

Compatibility and Mullins Effect of ABS/NBR TPV

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Abstract: Thermoplastic vulcanizates(TPV) based on acrylonitrile-butadiene-styrene terpolymer (ABS)/NBR were prepared by dynamic vulcanization method. Chlorinated polyethylene(CPE) was used as compatibilizer, and the effects of the addition level of CPE on physical properties, Mullins effect and microstructure of the TPVs were investigated. The results showed that, CPE could improve the compatibility of ABS/NBR system, and when the addition level of CPE was 6 phr, the comprehensive properties of ABS/NBR TPV were the best. Mullins effect could be observed during the uniaxial loading-unloading cycles, and the maximum stress, internal friction and tanδ under fixed deformation were significantly reduced after the first loading-unloading cycle while they were only slightly reduced after later loading-unloading cycles. Compared with the TPV without CPE, CPE/ABS/NBR TPV had higher residual deformation, stronger stress softening effect and higher tanδ. Morphology analysis result by SEM showed that the fracture surface of compatibilized TPV was smooth and the crosslinked NBR particles were dispersed uniformly.

Key words: ABS; NBR; TPV; compatibilizer; Mullins effect

一种对废旧轮胎中钢丝与橡胶进行分离和回收的装置

中图分类号 X783.3;TQ330.4$^+$93 **文献标志码** D

由江苏科技大学申请的专利(公开号 CN 103434046A,公开日期 2013-12-11)“一种对废旧轮胎中钢丝与橡胶进行分离和回收的装置”,涉及的对废旧轮胎中钢丝与橡胶进行分离和回收的装置包括机械耙爪、电磁铁、碾压轮和钢丝回收箱。其中,机械耙爪通过旋转连杆带动,旋转连杆通过主轴带动,钢丝回收箱位于电磁铁的下方,废旧轮胎通过碾压轮碾碎,被传送到栅台上。机械耙爪在主轴的带动下做回旋往复运动,不断地将钢丝从废旧轮胎中抽出来;电磁铁通电,产生磁性,吸附抽出的钢丝;然后电磁铁在指定位置断电,失去磁性,放下钢丝,从而完成对废旧轮胎中钢丝的回收。该装置安装方便,操作简单,零部件的标准化和通用化程度高,设备制造成本低。

(本刊编辑部 赵 敏)