- (3)与TDAE胶料相比,MSO胶料的拉断伸长率、耐低温性能和耐迁出性能等提升,滚动阻力性能相当。
- (4)以胶料中MSO替代TDAE生产的成品轮胎耐低温性能更佳,湿地抓着性能略有下降,冰雪路面的制动性能提高,滚动阻力相当。

参考文献:

- [1] 冯涛,于恩强,秦锴,等. 环保型橡胶增塑剂在半钢子午线轮胎胎面 胶中的应用[J]. 橡胶科技,2016,14(10):39-42.
- [2] 韩流,雍占福. 液体聚丁二烯替代芳烃油在全钢载重子午线轮胎胎 圈护胶中的应用研究[J]. 橡胶工业,2021,68(10):751-755.
- [3] RICARDO R M, FEDERICO G B, FEMANDO D L et al. Electric memory effects in styrene-butadiene rubber, containing electric inclusions of highly aromatic oil[J]. Journal of Advanced Dielectrics, 2018,8(3):18500182-18500189.

- [4] 梁诚. 欧盟REACH法案及对我国橡胶化学品的影响[J]. 橡胶科技市场,2007,5(11):1-4.
- [5] 宋丽媛,张剑平,王日国,等. 环保芳烃油填充改性反式-1,4-丁二 烯-异戊二烯共聚橡胶的研究[J]. 高分子通报,2018(4):44-52.
- [6] 陈赛艳,陈蕴智. 大豆油及其衍生物的新用途[J]. 大豆科技,2009 (1):40-42
- [7] LU J, WBOL R P. Additive toughening effects on new bio-based thermosetting resins from plantoils[J]. Composites Science and Technology, 2008, 68 (3-4):1025-1033.
- [8] SANDSTROM P H. Method of processing rubber compositions containing soya fatty acids, sunflower fatty acids and mixtures thereof[P]. USA:USP 6 448 318 B1,2002-09-10.
- [9] 刘德开. 植物油基环保增塑剂的合成及性能研究[D]. 无锡:江南大学,2021.
- [10] 胡善军,丁继业,吴欣欣. 改性植物油在冬季轮胎胎面胶配方中的 应用[J]. 轮胎工业,2017,37(6):351-355.

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Application of Modified Soybean Oil in Tread Compound of All-season Tire

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Abstract: The application of modified soybean oil (MSO) in all-season tire tread compound was studied. The results showed that, compared with environmentally friendly aromatic oil (TDAE), MSO could delay the scorching of the compound while increasing the vulcanization efficiency. The $F_{\rm L}$, $F_{\rm max}$ and Mooney viscosity of the compound using MSO were all reduced, indicating that the lubricating and plasticizing effect of MSO was better than that of TDAE. MSO could improve the dispersion of silica and reduce the Payne effect of the compound. The low-temperature performance of the finished tire with the tread compound using MSO was better, the wet grip performance slightly decreased, and the rolling resistance was equivalent.

Key words: soybean oil; modify; all-season tire; tread compound; plasticizer; processing property; migration resistance; finished tire performance

一种废旧轮胎再生利用环保处理设备

由张掖市宏金雁再生能源科技发展有限责任公司申请的专利(公布号 CN 113214859A,公布日期 2021-08-06)"一种废旧轮胎再生利用环保处理设备",公开了一种废旧轮胎再生利用环保处理设备,该设备釜体上方安装有驱动装置,驱动装置包括安装壳,安装壳底端固定连接有底板,正上方安装有电动机;3个转杆外壁的多个搅拌杆交叉且均匀分布,大大提高搅拌范围,从而提高搅拌效

率,使裂解更加充分;净化箱使废气中的刺激性气味以及杂质大大降低,有利于环境保护和工作人员的身体健康。该设备解决了现有的废旧轮胎再生利用环保处理设备对锁模机零件固定后不便于调节零件角度,不便于进行维修工作,降低维修效率,不能对零件很好地固定夹持,导致维修加工时容易错位,影响维修工作正常进行,且固定工序繁杂,费时费力的问题。

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