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收稿日期:2014-07-09

Study on Nano-calcium Carbonate/NR Composite Prepared by Latex Co-agglomeration under Pressure

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Abstract: The dispersion of nano-calcium carbonate was prepared by high pressure homogenizer, and the nano-calcium carbonate/NR composite was prepared by latex co-agglomeration under pressure. The microstructure of blended latex filled with nano-calcium carbonate, the physical properties of the resulted films, and the Mooney viscosity, dynamic modulus(G') and loss factor($\tan\delta$) of the composites were investigated. The results showed that, the dispersion of nano-calcium carbonate treated with high pressure homogenizer was good; low settlement, small particle size, narrow particle distribution and good storage stability. After co-agglomeration under pressure, the dispersion of nano-calcium carbonate in the compound was good. It was found that by using pressure during co-agglomeration, the physical properties of the composite latex film were improved significantly, the Mooney viscosity and G' at low strain amplitude of the compound increased, the $\tan\delta$ of the compound was reduced, and the interaction between rubber and nano-calcium carbonate was improved.

Key words: NR latex; nano-calcium carbonate; composite; co-agglomeration; dispersion

贵轮单轨车辆水平轮胎通过评审

中图分类号: TQ336.1 文献标志码: D

贵州轮胎股份有限公司为重庆市轨道交通(集团)有限公司研发的前进 E200—15 水平轮胎,日前通过来自相关企业及四川大学专家组成的评审委员会的评审。

评审会上,与会专家听取了国产前进 E200—15 18PR/SM10 轮胎项目进展、产品装车试验等情况汇报,认真审查了项目汇报材料,轮胎鉴定材料,产品的性能、技术条件、环境影响等技术参数,认为该轮胎综合性能好,达到单轨列车使用要求,并能满足批量供货条件。

据介绍,由贵州轮胎股份有限公司前进分公司研发的前进 E200—15 18PR/SM10 轮胎于 2009 年开始设计,2012 年 12 月完成所有室内试验。试验结果表明,该轮胎各项性能均达到或超过国外同规格先进产品。2013 年 1 月,该轮胎在重庆市轨道交通(集团)有限公司开始批量装车试验,并分别通过车辆正线空载试验、正线重载试验、正线常规载客试验等测试。

目前,该轮胎载客试验已累计运行 8 万 km,达到了原定行驶超过 5 万 km 的目标,轮胎使用状态良好。

(摘自《中国化工报》,2014-12-05)