

Tribology International,2012,55(11):135-140.

[4] 赵稼祥. 碳纤维的发展与应用[J]. 先进制造与材料应用技术,1996,45(5):10-14.

[5] Zielke U,Huttinger K J,Hoffman W P. Surface-oxidized Carbon Fibers(Ⅳ):Interaction with High-temperature Thermoplastics[J]. Carbon,1996,34(8):1015-1026.

[6] Paiva M C,Bernardo C A,Edie D D. A Comparative Analysis of Alternative Models to Predict the Tensile Strength of Untreated and Surface Oxidized Carbon Fibers [J]. Carbon,2001,39(7):1091-1101.

[7] 王云英,孟姜燕,陈学彬,等. 复合材料用碳纤维的表面处理[J]. 表面技术,2007,36(3):53-60.

[8] 王成忠,杨小平,于运花,等. XPS/AFM 研究沥青基碳纤维电化学表面处理过程的机制[J]. 复合材料学报,2002,19(5):28-32.

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Effect of Ozone Surface Modification of Chopped Pitch-based Carbon Fibers on Structure and Properties of Carbon Fiber/NR Composites

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Abstract: The effects of the ozone treating time for the surface of the chopped pitch-based carbon fiber (CF) and the addition level of CF on the structure and properties of NR composites were studied. The results showed that as the ozone treating time extended,the coating layer on the CF surface gradually became thinner until disappeared,the surface roughness increased,and the interfacial adhesion of NR and CF was significantly improved. The tensile strength of ozone treated CF/NR vulcanizates significantly increased compared with that of untreated CF/NR vulcanizates. With ozone treatment for 3.5 hours,the maximum tensile strength and elongation at break of CF/NR vulcanizates were obtained when 5 phr CF was added,and the initial decomposition temperature of the vulcanizates increased by 10 ℃.

Key words: NR;chopped pitch-based carbon fiber;ozone surface modification;thermal conductivity;physical property

负载型橡胶防老剂及其制备方法与应用

中图分类号 TQ330.38⁺2 文献标志码 D

由华南理工大学申请的专利(公开号 CN 103396592A,公开日期 2013-11-20)“负载型橡胶防老剂及其制备方法与应用”,提供了一种负载型橡胶防老剂的制备方法及其应用。首先将硅烷偶联剂与有机溶剂配成质量分数为 0.005~0.30 的溶液,并与无机载体混合形成固形物质量分数为 0.02~0.80 的混合物,在 40~100 ℃下搅拌反应 6~24 h;然后向反应产物中加入物质的量相当于偶联剂 0.6~1.5 倍的橡胶防老剂,在氮气保护及 50~80 ℃下反应 10~20 h;最后将反应产物过滤、洗涤、干燥,制得负载型橡胶防老剂。该负载型橡胶防老剂对橡胶的老化防护效果显著提高,并兼有补强剂和界面改性剂等功能,还能减少橡胶防老剂的环境污染和迁移,是一种高效、多功能、环境友好的新型橡胶助剂,在橡胶工业中具有广泛的应用前景。

(本刊编辑部 赵 敏)

一种耐溶剂型橡胶的配方

中图分类号:TQ336.4⁺3;TQ333.93 文献标志码:D

由无为县大江橡胶制品有限公司申请的专利(公开号 CN 103483831A,公开日期 2014-01-01)“一种耐溶剂型橡胶的配方”,涉及的耐溶剂型橡胶配方为:氨硅橡胶 45~55,2,4-二氯过氧化苯甲酰 4~6,二氧化硅 16~35,二氧化钛 6~12,硅氮烷 7~14。该产品具有耐溶剂性能优良、成型率高、成本低和使用方便等优点。

(本刊编辑部 赵 敏)