

(2) 在保证胶料硬度相同的条件下, 胶料耐动态臭氧性能随炭黑粒径的减小呈现出提高趋势。

(3) 采用防老剂 RD/4010NA 并用的胶料耐动态臭氧性能最好; 防老剂 4010NA 用量不影响胶料出现臭氧龟裂的初始时间; 随着微晶蜡用量的增大, 胶料的耐动态臭氧性能逐渐提高。

参考文献:

- [1] 杨清芝. 实用橡胶工艺学[M]. 北京: 化学工业出版社, 2005: 131.
- [2] Razumovskii S D, Batashova L S. Mechanism of Protection against Ozone by *n*-phenyl-*n'*-isopropyl-*p*-phenylenediamine [J]. Rubber Chemistry and Technology, 1970, 43(6): 1340-1348.
- [3] 涂学忠. 使用防老剂 77PD 或 TAPDT 提高轮胎黑胎侧耐长期静态臭氧龟裂性能[J]. 轮胎工业, 2000, 20(6): 352-360.
- [4] Alain Cottion, Georges Peyron. Method for Protecting a Type

against Ozone[P]. WO 0 194 453, 2001-12-13.

- [5] 刘海军. 新型抗臭氧剂 6PPD-C18[J]. 世界橡胶工业, 2005, 32(2): 15-19.
- [6] 卿勤, 蒋化学, 黄玉君. 防老剂 4010NA-M 在载重汽车轮胎胶料中的应用[J]. 橡胶科技市场, 2011, 9(7): 23-25.
- [7] Hong S W, Lin C Y. 用防老剂及并用防老剂提高轮胎胶料的耐屈挠疲劳和动态臭氧龟裂性能[J]. 轮胎工业, 2002, 22(3): 163-169.
- [8] Andries J C, Rhee C K, Smith R W, et al. A Surface Study of Ozone Attack and Antionzonant Protection of Carbon Black Loaded Natural Rubber Compounds[J]. Rubber Chemistry and Technology, 1979, 52(4): 823-837.
- [9] 于祥梅, 姚亮. NR 与 EPDM 并用抗臭氧老化性能的研究[J]. 广东橡胶, 2010(8): 16-17.
- [10] 谭德征. 石蜡在橡胶制品中的应用[J]. 橡胶工业, 1999, 46(9): 529-531.
- [11] 牟延亭. 国产橡胶微晶防护蜡的品种特性和应用[J]. 特种橡胶制品, 1991, 12(4): 17-19.

收稿日期: 2014-02-03

Dynamic Ozone Resistance of Natural Rubber

SONG Chuan-jiang, ZHANG Zhi-guang, CHEN Ping, HUANG Zi-hua

(Zhuzhou Times New Material Technology Co., Ltd, Zhuzhou 412007, China)

Abstract: The effects of formulation factors on the dynamic ozone resistance of natural rubber were studied. The results showed that, with different curing systems selected in this study, the dynamic ozone resistance of the compounds was similar. With the decrease of the carbon black particle size, the dynamic ozone resistance of the compound with the same hardness showed a tendency to increase. The dynamic ozone resistance of the compound with antioxidant RD/4010NA was the best among the studied antioxidant packages. The addition level of antioxidant 4010NA did not affect the initial cracking time of the compound. The dynamic ozone resistance gradually increased with increasing the addition level of microcrystalline wax.

Key words: natural rubber; dynamic ozone resistance; curing system; carbon black; antioxidant

“耐高温挡边输送带”专利获欧盟授权

中图分类号: TQ336.2 文献标志码: D

由青岛橡六输送带有限公司申请的专利“耐高温挡边输送带”被欧盟授权为发明专利, 专利号为 EP 1930257。该专利涉及一种横隔板及裙边与基带连接牢固的耐高温挡边输送带, 包括基带以及设置在基带上方的横隔板, 横隔板内嵌有金

属骨架, 横隔板通过紧固件固定在基带上, 还包括设置在横隔板两侧的裙边, 裙边底座内嵌有金属板, 裙边通过紧固件固定在基带上方。紧固件为螺钉。为了防止横隔板底座处断裂, 金属骨架截面形状与横隔板截面形状相适配。该结构特点使输送带的耐热性能提高 4 倍, 使用寿命延长, 成本降低。

(青岛橡六集团有限公司 孙丽华 张墩)