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Application of Protective Wax in Sidewall Compound of Tire

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Abstract: The application effect of protective wax in the sidewall compound of tires was studied, and the modified protective wax HG72B and high temperature protective wax H7075B were compared with an imported protective wax. The results showed that, by adding protective wax in the sidewall compound, the processing safety of the compounds could be improved and the flexural fatigue resistance, thermo-oxidative aging resistance and dynamic mechanical properties of the vulcanizates could be significantly improved. The ozone aging protective effect of the three tested protective waxes at 40 °C were comparable. The protective wax HG72B had small crystal nucleus, the formed wax film had high density and uniformity, moderate thickness and outstanding blooming resistance. The protective wax HG72B had excellent protective effect against high-temperature ozone aging at 50 °C and weathering aging, and had significant advantages in improving the appearance of the sidewall compound. The protective effect of high-temperature protective wax H7075B was slightly inferior to that of protective wax HG72B and obviously better than that of the imported protective wax.

Key words: protective wax; tire; sidewall compound; ozone aging; weathering aging; cracking; blooming

防轮胎变色保护液及其制备方法

由青岛大学、青岛创智恒业新材料有限公司和大冢材料科技(上海)有限公司申请的专利(公布号 CN 114106606A, 公布日期 2022-03-01)“防轮胎变色保护液及其制备方法”, 涉及一种可常温固化的具有超强耐候性的防轮胎变色保护液及其制备方法。

保护液配方(用量份)为水性环氧树脂 15~25, 增韧水性树脂 20~35, 改性剂 0.5~2.5, 可反应型紫外线吸收剂 1~2, 活性剂 1~3.5, 成膜助剂等其他助剂 2.6~5.5,

颜填料 0~6, 除菌剂 0.05~0.2, 去离子水 40~60, 在搅拌的条件下, 再加入固化剂 0.4~1.6份、稳定剂 0.05~0.5份、增稠剂 0.1~0.8份, 搅拌至一定时间, 过滤后得保护液。本发明采用高相对分子质量水性环氧树脂/增韧水性树脂复配, 为涂层提供一定的强度和韧性, 且可常温自固化, 为常温施工提供方便; 本发明为单组分水性涂料, 施工工艺简单, 使用方便, 耐刮蹭, 可防止涂层脱落, 能够显著避免轮胎在储存和运输过程中的变色现象。

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