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Application of Crystalline Silicon Powder in Base Compound of All-steel Radial Tire

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Abstract: The application of crystalline silicon powder in the base compound of all-steel radial tire was studied. The results showed that, compared with the production formula compound, the Mooney scorch time of the test formula compound using crystalline silicon powder changed little and the torque change value ($F_{\max} - F_L$) decreased, indicating that the crosslinking density of the compound formed by crystalline silicon powder and NR was slightly worse than that of the silica filled NR compound. Compared with the production formula vulcanizate, the modulus at 50% and 100% elongation of the test formula vulcanizate decreased slightly. The modulus at 300% elongation, tensile strength and tear strength decreased significantly. The loss factor of the test formula vulcanizate at 60 °C decreased significantly, indicating that its heat build-up was low. Moreover, the durability of the finished tire of the test formula was improved and the rolling resistance was reduced.

Key words: all-steel radial tire; base compound; crystalline silicon powder; heat build-up; rolling resistance

一种轮胎成型机带束鼓成型鼓一体式机箱及其工作方法

由天津赛象科技股份有限公司申请的专利(公布号 CN 114131976A, 公布日期 2022-03-04)“一种轮胎成型机带束鼓成型鼓一体式机箱及其工作方法”, 涉及的轮胎成型机带束鼓成型鼓一体式机箱包括芯轴、机箱装置、带束层传递环、带束鼓机构和成型鼓。机箱装置包括机箱框架、成型鼓旋转驱动和成型鼓分合装置; 芯轴转动安装在机箱框架上; 成型鼓分合装置包括内轴、外轴

和分合动力组件, 内轴滑动套装在芯轴上, 外轴滑动套装在内轴上, 成型鼓的两部分分别安装在内轴和外轴上, 分合动力组件能够带动内轴和外轴相互靠近或者远离。本发明减少了一个机箱, 降低生产制造成本的同时减小了设备占地面积, 优化了整机设备布局, 为提高设备自动化布局提供了基础, 解决了人为调整机箱主轴同轴度施工及检验困难的问题, 提高了设备运行稳定性以及轮胎成型质量。

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