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## Development and Adjustment of a Sports Car Tire

LIU Kun<sup>1</sup>, WANG Jun<sup>1</sup>, QIAO Yuanmei<sup>1</sup>, WANG Lufei<sup>1</sup>, SU Guoqing<sup>1</sup>,  
DONG Kang<sup>1</sup>, ZHANG Yong<sup>1</sup>, YANG Yiwen<sup>2</sup>

(1. Qingdao Doublestar Tire Industry Co., Ltd., Qingdao 266400, China; 2. Beijing Research and Design Institute of Rubber Industry Co., Ltd., Beijing 100143, China)

**Abstract:** In this study, the development of original tires for new sports cars in the domestic market was discussed. Firstly, the performance development priority was determined based on the requirements of the sports cars and a benchmark tire was selected. According to the target performance requirements, the targeted design and development were carried out from tire outer contour design, pattern design and construction design. The finite element analysis of the product was carried out in the early stage of the development, and the precise outer contour design, inner and outer asymmetrical pattern design and “7 + 7 + 7” crown strap winding method were adopted to ensure the handling performance and rolling resistance of the tire. In the later stage of the development, the tire development and adjustment were carried out twice, and the actual vehicle evaluation of braking performance, handling performance, noise, vibration and harshness, and comfort were carried out, and the target performance of the product was achieved.

**Key words:** sports car; outer contour; pattern design; construction design; handling performance; braking performance; comfort; adjustment

### 中国石油高性能橡胶: 实现轮胎工业用关键 核心基础材料国产化!

近日, 由中国石油天然气股份有限公司牵头承担的国家重点研发计划项目“高性能合成橡胶产业化关键技术”在赛轮(东营)轮胎股份有限公司召开了双B级轮胎生产示范和长寿命硫化胶囊应用示范现场评估会。

评估认为, 采用中国石油独山子石化分公司工业生产的官能化溶聚丁苯橡胶和稀土顺丁橡胶, 浙江信汇新材料股份有限公司工业生产的溴化丁基橡胶, 分别应用于轮胎胎面、胎侧和气密层, 并通过采用自主开发的原位补强湿法混炼技术、低温一次法炼胶工艺、电子辐照交联工艺生产的225/55R16规格轮胎, 经西班牙IDIADA Automotive Technology SA检测, 滚动阻力及抗湿滑性能分别达到欧盟轮胎标签法规A级和B级。

采用自主开发的长寿命硫化胶囊配方和制备工艺技术批量化生产的产品, 经第三方用户使用

证明, 平均使用寿命为622次。

双B级轮胎生产和长寿命硫化胶囊应用是继官能化溶聚丁苯橡胶、窄分布稀土顺丁橡胶、溴化丁基橡胶、星型支化丁基橡胶4种高性能合成橡胶工业生产示范后的橡胶应用示范, 也是该项目的最后一项产业化生产应用示范, 标志着此国家项目中所有工业生产示范工作圆满完成。

双B级轮胎生产示范采用的官能化溶聚丁苯橡胶、稀土顺丁橡胶、溴化丁基橡胶全部由项目组自主开发。至此, 项目完成了4个高性能合成橡胶材料小试、中试研究及工业生产示范, 并定型3个工业产品牌号, 开发高性能轮胎及长寿命硫化胶囊制造技术2项, 不仅实现了轮胎工业用关键核心基础材料的国产化, 也实现了国产轮胎用关键核心基础材料制备国际一流轮胎产品的突破, 将使我国高性能轮胎用关键基础材料平均占比提高15%以上, 轮胎达到双B级及以上, 年节油550万t, 引领国内合成橡胶及轮胎产业链的全面升级。

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