统计分析,对特定目标的多因素设计有较好的指导作用。

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Relationship between Tire Footprint and Design Factors

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Abstract:The relationship between tire footprint and design factors was studied. The experimental study found that when the steel belt angle was reduced, and the width of the $1^{\#}$ belt, the number of nylon crown ply layers and the linear density of the nylon crown ply were increased, the rectangular ratio of the footprint decreased, and the shape of tire footprint tended to change from rectangular to round. Moreover, the influence of single factor on the tire footprints was obtained by simulation analysis using Abaqus and statistical analysis using Isight software, which was consistent with the experimental test results. The significance of parameters that affecting the rectangular ratio of the footprint in the order from high to low were as follows:steel belt angle,number of nylon crown ply layers,carcass modulus,steel belt modulus,apex modulus, and apex height. The significance of parameters that affecting the pressure difference between the crown center and the shoulder in the descending order were as follows:steel belt angle,apex height,number of nylon crown ply layers,carcass modulus,steel belt modulus,apex modulus.

Key words:tire;footprint;simulation analysis;orthogonal design;statistical analysis;weight analysis

使用膨胀微球发泡的聚氨酯轮胎填充料及其制备方法

由山东一诺威聚氨酯股份有限公司申请的专利(公布号　CN 114920981A,公布日期　2022-08-19)"使用膨胀微球发泡的聚氨酯轮胎填充料及其制备方法",涉及一种使用膨胀微球发泡的聚氨酯轮胎填充料及其制备方法。使用膨胀微球发泡的聚氨酯轮胎填充料由预聚物和固化剂以质量比(0.9~1.1):1混合而成;预聚物由5~25份聚醚多元醇A、5~25份聚醚多元醇B、9~15份异氰酸酯、55~65份增塑剂制备得到;固化剂由5~10份交联剂、30~35份聚醚多元醇C、1~3份膨胀微球、0.1~0.5份催化剂及55~65份增塑剂组成。本发明聚氨酯轮胎填充料弹性体发泡均匀细密,可以明显改善轮胎的减震效果,有效减小了轮胎自身质量,提高了弹性体强度,延长了轮胎的使用寿命。

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