

行驶一段距离且速度稳定时再驶过压力毯。

(3) 静态情况下,在轮胎印痕边缘的一些单元只有部分加载,但却在接触面积中被当作是完整单元,使获得的有效接地面积和印痕面积存在误差。轮胎在与地面接触和与压力毯接触有不同的接触属性,也会对结果有微小的影响。

#### 4 结论

无论在静态还是滚动状态下,随着气压的增大,轮胎接地压力分布趋于均匀,胎肩处接地压力集中现象有所缓解,最大接地压力值增大,平均接地压力和接地压力偏度值逐渐增大;接地面积逐渐减小,接地海陆比与气压没有明显的函数关系;接地宽度基本不随气压改变而改变,而接地长度和接地面积随气压的减小而有所增大。在相同气压条件下,静态和滚动状态下的接地特性存在明显不同,滚动状态下接地特性的评价指标普遍

比静态下小;相对于静态条件,轮胎滚动状态下接地压力分布更均匀,胎肩应力集中现象变得不明显。

#### 参考文献:

- [1] Pillai P S, Fielding-Russell G S. Empirical Equations for Tire Footprint Area[J]. Rubber Chemistry and Technology, 1986, 59(1): 155-159.
- [2] 俞淇,戴元坎. 静负荷下轮胎接地压力分布测试的研究[J]. 轮胎工业, 1999, 19(4): 203-207.
- [3] 胡小弟,孙立军. 重型货车轮胎接地压力分布实测[J]. 同济大学学报(自然科学版), 2005, 33(11): 1443-1448.
- [4] 周刚,周进川,邓敏,等. 轮胎接地压力试验研究[J]. 公路交通科技(应用技术版), 2008, 25(9): 354-357.
- [5] 梁晨. 子午线轮胎接地压力特性研究[D]. 镇江:江苏大学, 2010.
- [6] Douglas R A, Werkmeister S, Gribble M. Tyre/Road Contact Stresses Measured and Modelled in Three Coordinate Directions[M]. New Zealand: New Zealand Transport Agency, 2009: 1-46.

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## Experimental Study on Contact Characteristics of Radial Tire in Static and Rolling State

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**Abstract:** The ground contact characteristics of steel-belted radial tire under static and rolling conditions were experimentally investigated by using Tekscan pressure distribution measurement system. The results showed that, with the increase of inflation pressure, the contact pressure distribution of tire became even, the maximum contact pressure increased, and the stress concentration at shoulder was reduced. As the inflation pressure decreased, the contact width changed little, but the contact length and contact area increased. At the same pressure condition, the evaluation index of contact performance of rolling tire was generally smaller than that in the static state. Compared with the static condition, contact pressure distribution of rolling tire was more uniform, and the stress concentration at shoulder was smaller.

**Key words:** radial tire; rolling condition; contact characteristic; contact pressure distribution

### 一种橡胶纳米材料的制备方法

中图分类号: TQ330.38<sup>+</sup>3 文献标志码: D

由安徽同丰橡塑工业有限公司申请的专利(公开号 CN 104672550A, 公开日期 2015-06-03)“一种橡胶纳米材料的制备方法”, 提供了一种橡胶纳米材料的制备方法: (1) 将无机粘土与去离子水配制成泥浆液(质量/体积比为 1 g : 10

mL), 在 65 °C 恒温水浴锅中搅拌分散 1 h;

(2) 将无机粘土有机改性剂按一定质量比(2.5 : 1 或 2.8 : 1 或 4.0 : 1) 混合, 65 °C 下继续恒温搅拌 2 h 制得插层型纳米复合材料。该方法易于扩大粘土片层间距, 操作简单, 不污染环境, 适合工业化推广。

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