

疲劳温升和永久变形降低,这与高岭土片层粒子取向及补强效果弱、自由橡胶含量高有关;随着改性高岭土用量增大,胶料的耐屈挠疲劳性能趋于改善。

老化后胶料的拉伸强度、拉断伸长率减小,这是由NR的异戊二烯单元热氧化断链引起的;300%定伸应力和邵尔A型硬度增大,这是因为在老化过程中硫化体系继续参与橡胶的交联,且交联速度大于降解速度,交联密度增大,相邻交联点间分子链变短,缓冲变形的时间缩短。综合分析,用改性高岭土替代部分炭黑N375后,胶料的耐老化性能变化不大。

2.4 成本分析

粒径小于2 μm 的粒子达90%以上的改性高岭

土的每吨价格为3000~4000元,而炭黑N375的每吨价格为7000元,在胎侧胶中用改性高岭土替代部分炭黑N375可以降低轮胎生产成本。

3 结论

在全钢子午线轮胎胎侧胶中用改性高岭土替代部分炭黑N375,虽然胶料的硬度、定伸应力、拉伸强度、撕裂强度有所减小;但门尼粘度下降,流动性较好,混炼能耗和排胶温度降低,加工性能改善,压缩疲劳温升和永久变形下降,耐屈挠疲劳性能提高;生产成本降低。因此,改性高岭土可以少量用于子午线轮胎胎侧胶中。

Application of Modified Kaolin in the Sidewall Compounds of All-steel Radial Tire

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Abstract: The application of surfactant-modified kaolin in the sidewall compound of the all-steel radial tire was investigated. The results showed that, by using the modified Kaolin to replace part of carbon black N375, the processing properties of the sidewall compound were improved, as indicated by the reduced Mooney viscosity, better flow properties, lower energy consumption during mixing and lower discharge temperature. The hardness, modulus, tensile strength and tear strength of the vulcanizates decreased slightly, the heat buildup during dynamic compression and the permanent set were reduced, and the flex fatigue resistance was improved. In addition, the production cost was reduced.

Keywords: modified kaolin; sidewall; radial tire

信息·资讯

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能为8万t,卡博特公司持有51%的股权。设备效率低、原材料成本过高是卡博特决定关闭该厂的主要原因。

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