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收稿日期: 2018-07-25

Properties of Thermoplastic Polyurethane/Methyl Vinyl Silicone Rubber Blends

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Abstract: The properties of thermoplastic polyurethane (TPU) /methyl vinyl silicone rubber (VMQ) blends were studied. The results showed that, without compatibilizer, when the amount of VMQ increased, the tensile strength and elongation at break of TPU/VMQ blends gradually decreased, the contact angle on the surface of TPU/VMQ blends decreased, and the surface tension on the solid phase increased. The tensile properties of TPU/VMQ blends were improved to some extent by adding compatibilizer A (silicon-containing polyurethane) or B (silicon-propyl graft copolymer). The tensile properties of TPU/VMQ blends were the best when the amount of compatibilizer A was 6 phr, or the amount of compatibilizer B was 4 phr. Within a certain range, with the increase of the amount of compatibilizer, the size of VMQ particles dispersed in TPU was reduced, and the compatibility of the two phases was improved.

Key words: silicone rubber; thermoplastic polyurethane; blends; compatibilizer; tensile property

韩泰轮胎发布电动汽车轮胎Kinergy AS EV

随着电动汽车市场需求日益增长, 相关高科技零配件的研发也备受关注。韩泰轮胎公布了旗下第2代电动汽车轮胎Kinergy AS EV (如图1所示)。这款电动汽车轮胎除了具有良好的操控性能之外, 还采用了先进的降噪技术, 为全球高端电动汽车的适配轮胎提供更多选择。



图1 韩泰Kinergy AS EV电动汽车轮胎

与内燃式汽车相比, 电动汽车不受发动机噪声的影响, 因此降低轮胎与道路摩擦产生的噪声对舒适驾驶至关重要。由于电池质量使电

动汽车车身质量增大10%~20%, 轮胎需要承受更大的负荷, 轮胎性能备受挑战。电动汽车对轮胎性能的要求更高。韩泰最新Kinergy AS EV轮胎是为了满足电动汽车对轮胎的严苛要求而设计研发的, 其搭载的先进降噪技术以及优化的花纹块间隙能在行驶过程中减少轮胎花纹块的振动频率, 从而降低轮胎与路面摩擦产生的噪声。

韩泰Kinergy AS EV轮胎采用芳纶混合型材料来加固轮胎带束层, 提高轮胎承重能力; 在汽车高速行驶或转向时尽可能地减小胎面变形, 保持良好的路面抓着力及精确的操控性能, 从而显著提高行驶稳定性; 采用了水松化合物、针叶树脂及环保型植物油等新型材料, 提高了轮胎的抗湿滑性能, 确保轮胎在各种路况下都能保持良好的操控性能、制动性能和驾驶稳定性。

韩泰Kinergy AS EV轮胎2018年先在韩国上市, 2019年在全球范围内上市, 为电动汽车用户提供静音、舒适的驾乘体验。

(王 雯)