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收稿日期:2017-12-02

Application of Environmentally Friendly Compound Antioxidant in NBR

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Abstract: The environmentally friendly compound antioxidant was prepared by using amine and phenolic antioxidant as the main antioxidants, phosphite ester and sulfur ester antioxidant as the auxiliary antioxidants, which were all environmentally friendly components. The application of the environmentally friendly compound antioxidant in NBR compound was investigated. The results showed that, with the addition of the compound antioxidant, the curing rate of NBR compound increased, the crosslink density increased and the physical properties were improved. It was found that the compound antioxidant with following formulation provided NBR compound the best anti-aging effect: antioxidant 4010NA 0.25～0.30 (mass fraction), Anox 1315 0.20～0.25, auxiliary antioxidant Weston 705 0.15～0.20, antioxidant 1520 0.10～0.15, and naphthenic oil as the solvent. The NBR compound with this compound antioxidant could meet the requirements of oil resistance at high temperature.

Key words: environmentally friendly compound antioxidant; amine antioxidant; phenolic antioxidant; phosphite ester antioxidant; NBR; aging resistance

美国高性能轮胎需求持续攀升

中图分类号:TQ336.1;F27 文献标志码:D

据美国轮胎制造商协会(USTMA)的最新数据显示,2017年美国高性能轮胎需求连续第8年上升,在原配轮胎和替换轮胎市场中高性能轮胎出货量占比分别达到56%和45%。

2017年,在美国替换轮胎市场中,H级及以上的轮胎出货量同比增长9.1%,达到9 200万条,占替换轮胎总出货量的45%,而2016年该占比为41%。其中,H级轮胎出货量同比增长11.7%,达到4 880万条;V级轮胎出货量同比增长8.4%,达到2 580万条;Z级轮胎出货量同比增长3.6%,达到1 740万条。

2017年,美国原配轮胎出货量下滑4.1%,降至2 520万条,供应北美轻型汽车制造商的原配乘用轮胎出货量跌幅更大(-6.9%),但高性能原配轮胎出货量在原配轮胎出货量中所占份额却上升5个百分点,达到56%。

原配轮胎市场需求变化也反映在原配轮胎规格中,其中深受欢迎的是轮辋直径为431.8,457.2,508.0 mm(17,18,20英寸)的轮胎,规格为235/60R18和245/60R18的轮胎也进入畅销轮胎规格前10位。据美国商务部公布的数据,2017年美国431.8 mm(17英寸)及更大轮辋直径的轮胎进口量同比增长13%,达到4 600万条。

冬季/牵引轮胎的销售形势不佳,2017年指定冬季轮胎的出货量连续第2年下跌(跌幅约为36%),仅占美国替换轮胎出货量的2.1%。

(朱永康)