

随着白炭黑用量的增大,ACM/PET TPV 的质量变化率呈减小趋势,耐油性能提高。这一方面是由于白炭黑的补强作用使材料的界面相容性变好,因此耐油性能得以改善;另一方面白炭黑对 PET 结晶起到了诱导成核作用,提高了聚酯的结晶度,使其耐油性能提高。

3 结论

(1) 与硅土、炭黑 N550 相比,白炭黑对 ACM/PET TPV 体系的补强效果最显著。

(2) 白炭黑的填料网络结构使 TPV 的表现粘度明显增大,白炭黑的加入能够提高 TPV 的耐油性能。

(3) 当补强剂用量为 30~50 份时,ACM/PET TPV 的物理性能最好;当白炭黑用量为 50 份时,ACM/PET TPV 的综合性能最佳。

参考文献:

[1] Gessler A M, Cranford, Haslett W H. Process for Preparing a

Vulcanized Blend of Crystalline Polypropylene and Chlorinated Butyl Rubber[P]. USA: USP 3 037 954, 1962-06-05.

[2] Coran A Y, Patel R. Rubber Thermoplastic Compositions. Part II. NBR-Nylon Thermoplastic Elastomeric Compositions [J]. Rubber Chemistry and Technology, 1980, 53(4): 781-794.

[3] G 霍尔登, N R 莱格, R 夸克, 等. 热塑性弹性体[M]. 北京: 化学工业出版社, 2000: 153-154.

[4] 孙亚娟, 张美珍, 周凯梁, 等. EPDM/PP 热塑性动态硫化胶的进展[J]. 合成橡胶工业, 2001, 24(1): 46-50.

[5] 吴绍吟, 马文石. 丙烯酸酯橡胶的加工与性能[J]. 特种橡胶制品, 1999, 20(3): 1-5.

[6] 余庆彦, 田洪池, 韩吉彬, 等. 纳米 CaCO_3 对三元乙丙橡胶/聚丙烯热塑性硫化胶性能的影响[J]. 特种橡胶制品, 2007, 28(6): 7-10.

[7] 韩秀萍, 李志君, 何祖飞, 等. 纳米 SiO_2 增强 NR/HDPE 共混型热塑性弹性的研究[J]. 功能高分子学报, 2005, 3(18): 12-16.

[8] 魏福庆, 李志君, 殷茜, 等. 纳米 SiO_2 对天然橡胶/聚丙烯共混型热塑性弹性体的改性[J]. 合成橡胶工业, 2006, 29(3): 215-219.

收稿日期: 2013-03-10

Study on Reinforcing System of Acrylate Rubber/Polyethylene Terephthalate Thermoplastic Vulcanizates

YU Hai-ning, HAN Ji-bin, DUAN Hong-yun, WU She-mao, ZHANG Li-qun

(Beijing University of Chemical Technology, Beijing 100029, China)

Abstract: The acrylate rubber (ACM)/polyethylene terephthalate (PET) thermoplastic vulcanizate (TPV) was prepared by dynamic vulcanization method, and the influence of different reinforcing agents (siliceous earth, carbon black and silica) on the physical properties, rheological property and oil resistance of ACM/PET TPV was investigated. The results showed that, compared with siliceous earth and carbon black, silica was more effective in the reinforcement of ACM/PET TPV. By adding silica, the apparent viscosity of ACM/PET TPV increased, and the physical properties and oil resistance of ACM/PET TPV were significantly improved. When the addition level of silica was 50 phr, the comprehensive properties of ACM/PET TPV was the best.

Key words: ACM; PET; thermoplastic elastomer; reinforcing agent

橡胶基阻尼材料及其制备方法

中图分类号: TQ336.4⁺2 文献标志码: D

由上海交通大学申请的专利(公开号 CN 102140207A, 公开日期 2011-08-03)“橡胶基阻尼材料及其制备方法”, 涉及橡胶基阻尼材料配方

为: 乙丙橡胶 0~200, 丁腈橡胶 0~200, 石油树脂 0~200, 酚醛树脂 0~200, 增塑剂 6~16, 过氧化物硫化剂 1~6。该材料可在保持原有阻尼峰值不明显下降的同时, 有效拓宽阻尼温域。

(本刊编辑部 赵敏)