

Study on Properties of EPDM Compound

II. Silica-reinforced EPDM Compound

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Abstract The influence of the silica kind, level and surface treatment as well as the level of silane coupling agent Si69 on the static and dynamic properties of silica-reinforced EPDM was studied; the abrasion surface from Akron test was analysed with SEM and the relationship between the abrasion surface morphology and the tensile properties was described; the mechanism and process of the silica modification with silane coupling agent were discussed; and the temperature in the core of rubber test piece under dynamic condition was measured with improved Goodrich compression fatigue tester. The results showed that the properties of the silica-reinforced EPDM compound were much lower than those carbon black-reinforced EPDM compound; the reinforcing effects of different silica kinds were quite different; the properties of the silica-reinforcing EPDM compound were significantly improved when the silica was treated with silane coupling agent Si69, and the modifying effect was remarkably influenced by the coupling agent level and the modification method.

Keywords EPDM, silica, silane coupling agent Si69, surface treatment, dynamic heat build-up

专家谈合成橡胶发展前景

有关专家日前对我国合成橡胶发展前景提出以下看法:

(1)我国长期存在的 SBR 和 BR 比例倒挂问题,到 2000 年将出现明显的变化(国外 SBR 与 BR 的比例在 1.6:1 ~ 2.0:1 之间,而我国却是 BR 高于 SBR),其原因除了这一时期 SBR 将发展较快外,还由于近几年 BR 的市场长期不景气,因而促进了其部分装置的改造和转换。而在 SBR 发展过程中,由于燕山石化公司开发成功了溶聚丁苯橡胶(SSBR)的技术,促进了 SSBR 的发展。目前燕山石化公司已将年产 SSBR 1.5 万 t 的装置扩大为 3 万 t,齐鲁、大庆等地都在建设年产 3 万 ~ 4 万 t 的 SSBR 的装置。从长远看,由于 SSBR 的抗湿滑性能较好和滚动阻力较小,今后在轮胎胎面生产中的使用比例将会不断提高。加上 SSBR 可以与低顺式聚丁二烯橡胶共用一套设备,故其前景看好。

(2)需求大于产出的主要品种仍是 ABS 树脂,大量进口的局面虽会逐步趋缓,但仍将持续若干年。这种依赖进口的状况,从国际大市场的角度看,因素相当复杂。预计在下世纪初,一批年产 60 万 t 大乙烯项目建成投产后,国产

ABS 树脂会有较快的增长。现在国内有一批年产 1 万 t 左右的掺混法加工装置(合计年生产能力为 8 万 t),今后随着大型 ABS 树脂装置的建成,难以与之竞争将逐步停产和关闭。

(3)SBS 等弹性体和各类胶乳市场将继续看好,但竞争可能渐趋激烈。SBS 弹性体在本世纪末前后仍需要适当进口。而 1999 年,美国道化学公司在张家港的丁苯胶乳项目建成投产后,丁苯胶乳可基本满足国内市场需求。

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双螺杆橡胶压片挤出机通过专家验收

由大连橡胶塑料机械厂研制的双螺杆橡胶压片挤出机是“八五”子午线轮胎关键设备消化吸收项目,经国家橡胶机械质量监督检测中心检验,各项性能、质量指标均达到或超过有关标准。经中美合资荣达橡胶制品有限公司实际使用验证,该机各项技术性能均满足生产工艺要求,产量大,吃料速度快,冷却效果好,自动化程度高,可实现自动化、连续化生产。专家认为,该机主要性能指标达到 90 年代中期国际同类设备先进水平,可以替代进口产品。

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