

Application of Two Kinds of SSBR in Tire Tread Compound

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Abstract: In this study, the application of two kinds of solution polymerized styrene butadiene rubber (SSBR) E680 and HP755R, in tire tread compounds was studied. SSBR E680 had low bound styrene content and high vinyl content, while SSBR HP755R had high bound styrene content and low vinyl content. The results showed that, compared with SSBR HP755R, the scorch time and t_{90} of the SSBR E680 compound were shorter, and the modulus at 300% elongation and tensile strength of the SSBR E680 vulcanizate were slightly higher. There was no obvious difference in the extrusion process properties between the two. Meanwhile, the loss factor ($\tan\delta$) of the SSBR E680 compound at 0 °C was slightly larger, and its $\tan\delta$ at 60 °C was slightly smaller which indicated that the SSBR E680 compound had better wet skid resistance, lower heat build-up and lower rolling resistance.

Key words: SSBR; bound styrene content; vinyl content; tread compound; physical property; fluidity; dynamic mechanical property

益阳橡胶机签订历史最大订单

日前,益阳橡胶塑料机械集团有限公司(简称益阳橡胶)与国内某大型橡胶集团公司举行了橡胶轮胎机械装备签约仪式,合同总金额近2亿元,采购设备包括多台人工智能(AI)控制GE580/GE1000T型超大型串联密炼机、AI控制GN300型终炼密炼机、AI控制XJY-ZS936/416型双螺杆挤出压片机、129.54 cm(51英寸)S1天平式伺服液压硫化机和132.08 cm(52英寸)S1框架式液压硫化机等。这些设备将用于客户的智能化工厂改造项目。

该橡胶集团公司表示,智能化工厂改造项目集AI控制、绿色环保、高效节能为一体,着力打造轮胎行业的“黑灯工厂”、标杆工厂,项目中所选用的设备均来自于国内外高水准的供应商。

近年来,益阳橡胶立足密炼机技术优势,贴合行业发展的前沿趋势与市场需求,大力加强大规格串联式密炼机和大型切线系列密炼机产品的创新研制与市场应用推广,形成了丰富的产品组合。其中,GE420/GE800T型串联式密炼机和GE580/GE1000T型串联密炼机以大产量、高效率、

低能耗的优秀表现赢得了客户的高度认可。与传统密炼机相比,GE580/GE1000T型串联密炼机特别适用于白炭黑填充量大的胶料的混炼,填料分散度较好,是生产低滚动阻力绿色轮胎的首选炼胶设备,与传统切线型密炼机相比优势更加明显,其产能提高1倍以上,粉尘排放量减少约60%,节能20%~50%,节油约60%,炼胶操作人员减少50%。

此次合同中涉及的密炼机均采用了最先进的高压交流永磁半直驱以及全伺服液压驱动技术,也就是静音式驱动技术,减速机由3级传动减少为1级传动,电动机最高转速不超过300 r·min⁻¹,同时取消了减速机稀油站和电机风机,噪声降低10~15 dB(A);伺服液压系统使得液压系统控制原理简单可靠、精度高、速度快,节能降噪;密炼机和双螺杆在轮胎行业中首次采用AI控制,同时也可采用手动控制、遥控控制系统;工厂服务器上设有AI控制平台,智能炼胶控制系统和密炼机设备智能运维模型的保存、更新、优化、管理承载在平台上,同时也支持云端部署。

(郑良明 陈建绥)