

Influence of Peroxide Vulcanization System on Properties of Polybutadiene Rubber with Structurally Different Configurations

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Abstract: The effects of peroxide vulcanization system (vulcanizing agent DCP/auxiliary crosslinking agent TAC) on the properties of two polybutadiene rubber (BR) materials which had structurally different configurations, high cis-1,4-polybutadiene rubber (BR9000) and high vinyl polybutadiene rubber (HVBR), were investigated. The results showed that the curing rate of BR9000 and HVBR compounds increased with the increase of vulcanization temperature or the amount of curing agent DCP. The crosslinking density was less affected by vulcanization temperature, but it was proportional to the amount of curing agent DCP. Compared with the main chain carbon-carbon double bond in BR9000, the side chain carbon-carbon double bond in HVBR had less steric hindrance and higher reactivity. Compared with the allylic hydrogen (α -H) in BR9000, the hydrogen atom attaching to the tertiary carbon atom in HVBR possessed higher reactivity, with which the free radicals produced by decomposition of curing agent DCP could easily react to form active crosslinking sites and then establish an effective crosslinking network. As a result, the vulcanization rate of HVBR compound was faster than that of BR9000 compound, and the crosslinking density and tensile strength were higher.

Key words: high cis-1,4-polybutadiene rubber; high vinyl polybutadiene rubber; peroxide vulcanization system; vulcanizing agent DCP

住友橡胶加大在华投资力度

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基于对我国节油轮胎需求旺盛的预测,日本住友橡胶工业公司(以下简称住友橡胶)计划加大在中国的投资力度,到2020年将其在中国的乘用车轮胎产能提高60%。

为了实现这一目标,住友橡胶计划投资2.67亿美元,将其湖南长沙工厂的乘用车轮胎日产能从2万条提高到6万条。此外,住友橡胶计划在1~2年内将其在华经销商数量增大10%,增至7 000家,增加的经销商重点分布在四川和湖南等地。

住友橡胶表示,中国乘用车保有量快速增长,乘用车轮胎市场增长潜力巨大。住友橡胶乘用车轮胎滚动阻力小,噪声低,燃油效率高,虽然价格较高,但是与高端品牌汽车轮胎配套具有优势,预计未来需求会强劲增长。目前,住友橡胶在我国

轮胎市场所占的份额不到10%,住友橡胶的目标是通过提高高附加值轮胎销量来扩大其市场份额。2015年,住友橡胶终止了与美国固特异公司的合作,致使其无法在北美市场销售邓禄普品牌轮胎,但是依然可以在中国、南美和非洲市场销售邓禄普牌轮胎。住友橡胶正在大力推广其自有的飞劲(Falken)牌轮胎产品。

另外,住友橡胶在我国开设了20家以“D-Guard”为店名的综合汽车用品店,提供更换机油、电池等汽车保养和检查服务。住友橡胶希望通过逐步加强服务以提高其品牌影响力。

预计2017年住友橡胶轮胎销售额将达到8 500亿日元,同比增长12%,在全球轮胎市场稳居第6位。由于在日本市场的销售额已在其总销售额中占比高达40%,住友橡胶将加快拓展海外轮胎业务。住友橡胶还计划在巴西和南非进行投资。

(朱永康)