

## Effects of Mixing Process on Processing Properties of NR/IR/BR Blend Filled with Carbon Black and Silica

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**Abstract:** The effects of different mixing process on the processing properties of natural rubber (NR) / isoprene rubber (IR) / butadiene rubber (BR) blend filled with carbon black and silica were investigated. The studied mixing processes included common mixing process, masterbatch mixing process 1 in which the carbon black and silica masterbatch were prepared separately, and masterbatch mixing process 2 which was the same as the masterbatch mixing process 1 except that the silica masterbatch underwent heat treatment. The results showed that, the Mooney viscosity and optimum cure time of the compounds decreased slightly by using masterbatch mixing process. After 30 days of storage, the Mooney viscosity, bound rubber content and Payne effect of the compound prepared by masterbatch mixing process 1 were lower than the others, and it showed excellent extrusion processing performance. TEM test showed that, silica was dispersed well in the compound prepared by masterbatch mixing process 2.

**Key words:** mixing process; NR; IR; BR; silica; heat treatment; processing property; Payne effect

### 大陆扩大通用品牌特种轮胎产品线

美国《现代轮胎经销商》(www.moderntiredealer.com) 2019年6月26日报道:

大陆轮胎美洲公司扩大其材料处理轮胎产品线,推出通用品牌General Tire Trac和General Tire Smooth轮胎,分别见图1和2。

这两款压带式轮胎在美国和加拿大出售。通用特种轮胎产品线在2018年曾扩大推出General Tractor V. ply轮胎。

该公司称,新材料处理轮胎提供良好的抗切割和抗撕裂性能、长行驶里程和高耐久性能,性价比



图2 General Tire Smooth轮胎

比非常高。

General Tire Trac轮胎设计有抓着边缘,适于所有户外应用场合。优化的胎面设计确保其顶级牵引性能和高稳定性。该轮胎现有 $16 \times 6 \times 10 \frac{1}{2}$ 和 $18 \times 6 \times 12 \frac{1}{8}$ 等6个规格。

General Tire Smooth轮胎也具有高稳定性,其光胎面设计适于室内应用,具有优异的牵引性能,抗崩花掉块,综合使用性能优良。该轮胎现有 $10 \times 5 \times 6 \frac{1}{2}$ ,  $14 \times 4 \frac{1}{2} \times 8$ 和 $15 \times 5 \times 11 \frac{1}{4}$ 等13个规格。

(吴秀兰摘译 赵敏校)



图1 General Tire Trac轮胎