

通硫黄硫化体系的5[#]配方胶料动静刚度比呈增大趋势,采用半有效硫化体系的6[#]配方胶料动静刚度比基本不变。这是由于在半有效硫化体系胶料的交联网络结构中硫原子与游离硫少,交联网络牢固,因而胶料的动静刚度比稳定^[4]。

3 结论

(1) 含胶率越大, NR胶料的动静刚度比越小。

(2) 与炭黑N774胶料相比,小粒径、大比表面积的黑炭N330的胶料硬度和动静刚度比均较大;炭黑用量大的胶料动静刚度比较大。

(3) 随着硫化时间的延长,普通硫黄硫化体系胶料的动静刚度比增大,半有效硫化体系胶料的

动静刚度比基本不变。

(4) 通过调整含胶率、补强体系和硫化体系可以调整NR胶料的动静刚度比,以设计适宜的减震橡胶制品。

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Effect of Formulation Factors on Ratio of Dynamic Stiffness and Static Stiffness of Natural Rubber Compound

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Abstract: The effects of rubber content, reinforcing system and vulcanization system on the dynamic and static stiffness ratio of natural rubber (NR) were studied. The results showed that the dynamic and static stiffness ratio was lower when the rubber content was higher. Compared with carbon black N774 filled compound, the compound filled with carbon black N330 which had a smaller particle size and larger specific surface area than carbon black N774 possessed higher hardness and larger dynamic and static stiffness ratio, and the dynamic and the static stiffness ratio increased with the increase of carbon black content. The dynamic and static stiffness ratio of the compound cured by the regular sulfur vulcanization system increased with longer curing time, but it didn't change with longer curing time when semi-efficient curing system was used.

Key words: natural rubber; dynamic and static stiffness ratio; rubber content; carbon black; reinforcement system; vulcanization system

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