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Preparation of Multi-walled Carbon Nanotube Modified by Hydroxyl-terminated Polybutadiene and Its Effect on Reinforcement of BR

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Abstract: The multi-walled carbon nanotube (MWNTs) was modified by hydroxyl-terminated polybutadiene (HTPB) and its effect on the reinforcement of BR was studied. The results showed that the surface of MWNTs was wrapped by HTPB by grounding MWNTs with liquid HTPB, and then the solubility of MWNTs in solvents such as toluene was improved. When MWNTs was pretreated to have carboxylic groups functionalized on the surface, the modification efficiency of HTPB wrapping was increased, which resulted in better dispersion of MWNTs in BR, higher interfacial adhesion between MWNTs and BR, and improved reinforcement effect.

Key words: hydroxy-terminated polybutadiene; carbon nanotubes; BR; reinforcement

2012 年江西黑猫炭黑出口量大幅增长

中图分类号: TQ127.1⁺⁺¹ 文献标志码: D

2012 年, 江西黑猫炭黑股份有限公司出口额和出口销售比例分别为 13.31 亿元和 29.35%, 同比分别增长 44.20% 和 23.27%; 实现营业收入 46.5 亿元, 同比增长 16.96%; 净利润为 1 亿元, 同比下降 20%。

2012 年, 该公司主营业务综合毛利率为 14.90%, 同比下降 1.11%, 主要原因为 2012 年

炭黑下游轮胎行业开工不足, 炭黑产能结构性过剩明显, 产品价格不能及时跟随原料价格上涨进行相应调整, 从而导致年度毛利率下降。

该公司规模优势明显, 随着黑猫炭黑唐山分公司等新建产能的陆续建成投产, 2012 年产能规模已达到 86 万 t, 产能位居全球第四。预计 2014 年, 黑猫炭黑山东济宁分公司 20 万 t 炭黑生产基地建成, 其总产能将超过 100 万 t。

(原中国橡胶工业协会炭黑分会 郭隽奎)