

研究论文

新型软质抗静电聚氯乙烯材料的研究

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摘要 合成了一种长链季铵盐类化合物, 将其用作抗静电剂添加到软质聚氯乙烯(PVC)材料中, 测试了材料的表面电阻、力学性能, 并采用扫描电子显微镜测试研究了其结构. 结果表明:

随成长链季铵盐的添加量增大, PVC材料的表面电阻率降低, 较小的添加量(4.5%)

即可使材料的表面电阻率降低至 $3.0 \times 10^8 \Omega$ 以下, 达到了煤矿行业对高分子材料抗静电性能的要求.

在上述抗静电PVC材料中添加一定量的聚氧化乙烯(PEO), 可以降低抗静电材料对环境湿度的依赖性, 并提高PVC材料的力学性能和抗静电性能.

关键词 [季铵盐](#) [软质聚氯乙烯](#) [表面电阻率](#) [抗静电性](#) [PEO](#)

分类号

Study on Novel Soft Poly(vinyl Chloride) with Antistatic Property

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Abstract A quaternary ammonium salt compound with a long chain of 12 carbon atoms was synthesized and used as an antistatic agent to be added into plasticized poly(vinyl chloride) (PVC), and the structure and properties of such PVC materials were studied by surface resistivity, mechanical property and scanning electronic microscope tests. The results show that with the content of the synthetic compound increasing, the surface resistivity of PVC materials was decreased. When the content of the synthetic compound reached 4.5%, the surface resistivity of PVC materials was reduced below $3.0 \times 10^8 \Omega$. When a small amount of poly(ethylene oxide) was added, the surface resistivity of PVC materials was not sensitive to atmospheric humidity and was further reduced, and the tensile strength and break elongation of PVC, however, were improved.

Key words [quaternary ammonium salt](#) [plasticized poly\(vinyl chloride\)](#) [surface resistivity](#) [antistatic performance](#) [poly\(ethylene oxide\)](#)

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