

### 论文

#### 一种环保水性抗静电防腐涂料的性能研究

陈中华<sup>1,2</sup>, 唐英<sup>1</sup>, 余飞<sup>1</sup>

1. 华南理工大学材料学院 广州 510640

2. 广东省特种涂料工程技术研究开发中心 广州 510520

摘要:

在水性环氧树脂及固化剂双组分体系中, 采用浅色导电云母粉和钛白粉, 优选环保型防锈颜料, 运用扫描电镜、激光粒度分析仪、表面电阻率测试仪等分析手段研究了导电云母粉的粒径、用量、搅拌分散速度、钛白粉用量以及防沉剂的种类对涂层抗静电性的影响; 研究了树脂/固化剂比例、体系颜料体积浓度及防锈颜料种类对涂层综合性能的影响; 制备出了一种兼具良好抗静电性、优异防腐性以及良好装饰性的环保水性抗静电防腐涂料。

关键词: 抗静电; 防腐; 导电云母粉; 水性环氧树脂; 环保

#### PROPERTIES OF AN ENVIRONMENTALLY FRIENDLY WATERBORNE ANTI STATIC ANTI CORROSIVE PAINT

CHEN Zhonghua<sup>1,2</sup>, TANG Ying<sup>1</sup>, YU Fei<sup>1</sup>

1. College of Materials Science and Engineering, South China University of Technology, Guangzhou 510640;

2. Guangdong Special Coating Technical Research and Developing Center, Guangzhou 510520

Abstract:

Using light color conductive mica, titanium oxides and environmentally friendly anticorrosive pigments in the two-component epoxy paint system, a new kind of environmentally friendly waterborne paint with good antistatic property, excellent anticorrosion performance and good ornamental behavior was prepared. The antistatic property and anticorrosive performance of the paint were analyzed by use of scanning electron microscopy, laser particle diameter analyzer and surface resistivity tester. The results indicated that the particle size and the amount of conductive mica, its dispersing speed, the amount of titanium oxides, and the type of anti-settlement agent have great influence on the antistatic property of the paint. Combined with 30 mass % conductive mica (of volume average diameter as 16.96 $\mu\text{m}$ ) under its dispersing speed of 1000 r/min and fumed SiO<sub>2</sub> as anti-settlement agent, the surface resistivity of the paint can reach to 10<sup>6</sup> $\Omega$ . The optimal addition of titanium oxides is 2.7 mass%. The integrated properties of paint were decided by the ratio of epoxy resin to its curing agent, the pigment volume concentration (PVC) and the type of anticorrosive pigments. As the PVC range from 30% to 35% and the ratio of epoxy resin to its curing agent reach to 4:1, the optimal integrated property of the paint can be obtained.

Keywords: antistatic; anticorrosive; conductive mica; waterborne epoxy resin; environmentally friendly

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通讯作者: 陈中华 Email: cezhchen@scut.edu.cn

作者简介:

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