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新型置换法制备Ni涂覆SiC颗粒

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摘 要: 应用自行设计的新型化学涂层工艺(置换法), 对粉末表面进行预处理后, 采用自配亲水性溶液对被涂颗粒(SiC)进行表面预处理, 改善了涂层金属与颗粒基体的结合状况, 与未经亲水性处理的普通置换法相比, 新型化学涂层工艺得到了较光滑、致密的Ni涂SiC粉末. 实验进一步分析了涂层反应温度、表面活性剂、涂层助剂(乙酸)等因素对涂层效果的影响, 结果表明: 随着涂层反应温度的升高, 涂层沉积速率明显加快, 但涂层致密度降低; 适量的表面活性剂与涂层助剂对涂层效果有积极的作用. 试验选定涂层反应温度90℃、适量聚乙二醇和乙酸的工艺条件进行涂层研究, 对涂层含量、涂层厚度进行了控制与计算, 得到了粉末厚度、涂层粒度、粉末表面形状因子之间的定量关系. 对涂层反应的热力学原理进行了分析研究.

关键字: 化学涂层; 置换法; 涂层粉末; 表面活性剂; 表面形状因子

Study on a new transpositional method to produce nickel-coated SiC particulates

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Abstract: The process of using a new powder chemical coating (transpositional coating) to produce Nickel-coated SiC particulates has been studied. After the treatment of SiC particulates by active solution the Nickel coatings is very smooth and well-knit. The paper has also studied the effects of the temperature of chemical coating, surface active agent and CH₃COOH on the coating. The results show that with the higher temperature there would be the higher deposit rate and the lower coating density. Suitable surface active agent and CH₃COOH have positive effects on coating. Fix relationship among the coatings thickness, the particle granularity and the coefficient of surface and shape has been studied.

Key words: chemical coating; transpositional method; coated particulates; surface active agent; coefficient of surface and shape

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