

论文

金属化生物颗粒的制备与性能测试

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摘要:

针对当前军、民用领域对新型包覆型功能材料的需求,以花粉作为内核,采用化学镀铜方法,制备了表面包覆铜膜的金
属化花粉,利用扫描电子显微镜、傅里叶变换红外光谱仪和微波测试系统对金属化花粉的结构特性、红外与微波波
段电磁特性进行了测试与分析.扫描电子显微镜图显示,花粉金属化后形态保持良好、未发生破裂或变形,铜镀层厚度
均匀、结构致密,镀层厚度在1 μm 左右.红外和微波波段实验结果表明,金属化花粉的红外与微波波段电磁特性主要
由其铜镀层决定,镀铜后花粉对红外和微波具有强反射和强吸收作用.金属化花粉颗粒以其金属外壳的强电磁衰减能
力和花粉内核的低密度轻质特性,具有作为新型红外和微波波段功能材料的潜力.

关键词: 电磁特性 生物加工 花粉金属化 化学镀铜

Preparation and Performance Testing of Metallic Biologic Particles

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Abstract:

Focusing on demands in military and civilian fields for new coated composite functional material, farinas, using as nucleus and metallized by chemical plating copper method, are enwrapped by cupreous crusts and made into metallic farinas. By using scanning electron microscope, Fourier transform infrared spectrometer and microwave testing system, metallic farinas' structure characteristic, electromagnetic properties in infrared and microwave band are tested. The SEM picture shows that metallic farinas have complete morphology, without fracture or deformation. Their cupreous crusts' thickness is homogeneous, about 1 μm , and have compact structure. The results of infrared and microwave band experiments show that metallic farinas' electromagnetic properties in infrared and microwave band are determined by their cupreous crusts, reflecting and absorbing infrared and microwave intensively. Metallic farinas, whose metallic crusts have strong attenuation capability and fraina nuclus are lightweight, are practicable to be used as functional material in infrared and microwave band.

Keywords: Electromagnetic properties Biological process Farina metallization Chemical plating copper

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