

### 论文摘要

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## Ag-Cu-Ti钎料中Ti元素在金刚石界面的特征

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**摘要:** 研究了金刚石钎接头中碳化物形成元素Ti与金刚石(或石墨)之间的相互作用行为。通过对接头界面处的成分分布和断口形貌观察, 分析了Ti的作用机理、新生化合物TiC的断口形式及生长规律。结果表明: 在一定的条件下, Ti元素与组成金刚石(或石墨)的碳元素发生反应形成TiC层; 碳化物层使钎料与金刚石之间产生冶金结合; TiC与金刚石之间存在有明显的界面, TiC断口的微观表面形态呈韧窝状; 在金刚石表面初始形成的TiC的生长方向与金刚石的晶向指数有关。

**关键字:** 金刚石; 钎焊; Ag-Cu-Ti

## Characteristic of Ti in Ag-Cu-Ti filler in brazed joint of diamond

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**Abstract:** The effect of Ti in the brazing joint of diamond (or graphite) was studied by SEM, electron probe and X-ray diffractometer. The distribution of composition and fracture morphologies in the interface were analyzed. The behaviour mechanism of Ti and the growth mode of TiC were investigated. The results show that TiC is formed by reaction between Ti in the brazing alloy and C in the diamond under controlled condition; TiC joins the brazing alloy and diamond surface strongly. The clear interface is found between TiC and diamond surface on the fracture morphologies. The surface of TiC appears a lot of tough holes. The growth direction of TiC on the surface of diamond at the beginning is involved in crystal lattice parameter of diamond grains perhaps.

**Key words:** diamond; brazing; Ag-Cu-Ti

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