

论文

氧含量测定方法及在人造金刚石用触媒质量控制中的应用

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摘要:

目前人工合成金刚石主要采用有触媒合金参与的高温高压静压法,触媒合金中的氧对金刚石的形核长大以及晶体质量影响很大,尤其是采用易氧化的铁基合金作触媒更为明显.阐明合金中氧对金刚石形核生长以及质量影响机理研究,已经成为国内外金刚石工作者关注的重点.本文综述了几种常用的测定氧含量的方法,在阐述机理的基础上对其进行了分类比较,同时对铁基触媒中氧含量的红外定量检测以及氧含量在触媒制备过程中的变化规律进行了探讨.

关键词: 人造金刚石 氧含量 测定 触媒

Detection methods of oxygen content and an application of the catalysts for synthesizing diamonds in quality control

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Abstract:

As an important method of diamond synthesis at HPHT, catalyst alternately stacked with graphite was widely used in practical production. The existence of oxygen in catalysts had very important effects on the nucleation and quality of the diamond, especially for iron-based alloy catalyst. The precise detection of the oxygen content was basic for illustrating the oxygen effectina mechanism on the nucleation and quality of the diamond. Some common detection methods of the oxygen content were dealt with and compared. At the same time, the quantitative detection of the oxygen content in the catalyst used in IRO-II and change of oxygen content during catalyst preparation were also discussed.

Keywords: synthetic diamond oxygen content detection catalyst

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