



## 永磁钡铁氧体活化烧结的研究

硝酸铋和 $\text{Bi}_2\text{O}_3$ 可作为钡铁氧体烧结的活化剂,但要达到相同的烧结密度,添加前者的烧结温度要比添加后者将近低 $100^\circ\text{C}$ ,因此采用硝酸铋更理想。

硝酸铋可以明显地降低烧结温度(图1)。由图1可见,当达到工艺所要求的密度90%左右(即达

到 $4.7\text{g}/\text{cm}^3$ )时,烧结温度由不加硝酸铋的 $1300^\circ\text{C}$ 降低到 $1160^\circ\text{C}$ 左右。

硝酸铋的加入对磁体磁性能的影响如图2所示。由图2可见,硝酸铋的加入可以明显的提高磁体的磁能积。

硝酸铋的加入量对磁体磁性能的影响如图3所

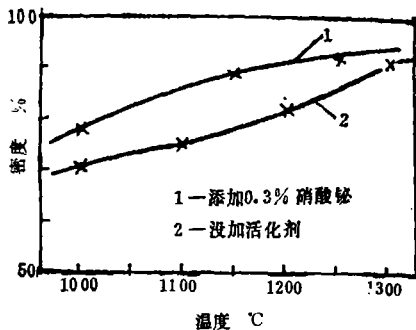


图1 硝酸铋对烧结温度的影响

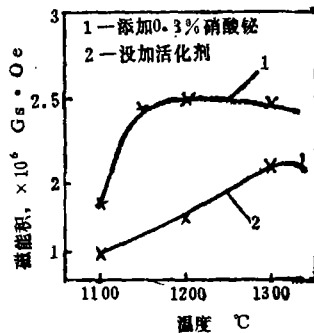


图2 硝酸铋对磁性能的影响

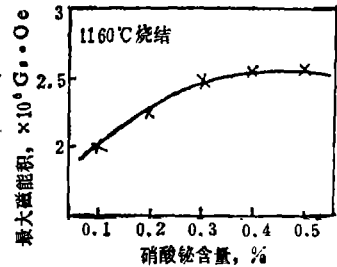


图3 硝酸铋的加入量对磁性能的影响

示。由图3可见,硝酸铋的最佳加入量为0.3%,磁能积最高。

用适量硝酸铋活化烧结得到的各向异性磁体,其磁性能稳定在:  $\text{Br}$ (剩磁):  $3400 \sim 3600\text{G}$ ;  $\text{RHc}$

(矫顽力):  $>1600\text{Oe}$ ;  $(\text{BH})_{\text{max}}$ (最大磁能积):  $2.4 \sim 2.8 \times 10^6 \text{G}\cdot\text{Oe}$ 。

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## MANUFACTURING TECHNOLOGIES AND APPLICATIONS OF PRECISION CERAMICS

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**ABSTRACT** The present paper has described the technical developments of precision ceramics, mainly including production process of raw material powder (nitride, carbide and oxide), forming technology (putting emphasis on injection moulding), sintering technology (plasma sintering and high pressure self-combustion sintering) and applications. Finally, several new ceramic composite materials have been briefly introduced, such as ceramic-metal composite materials, coating materials, fibre strengthening materials, etc.