

### 论文摘要

中国有色金属学报

**ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO**

第11卷 第6期 (总第45期) 2001年12月

 [PDF全文下载]  [全文在线阅读]

文章编号: 1004-0609(2001)06-0947-13

## 微量元素磷在铁镍基变形高温合金中的作用

胡壮麒, 孙文儒, 郭守仁, 卢德忠

(中国科学院 金属研究所, 沈阳 110015)

**摘要:** 综述了磷对铁镍基变形合金的影响及机理。简述了磷的性质, 来源及冶炼控制。介绍了磷的凝固偏析及对合金凝固过程的影响与机理。以微量元素对晶界能、晶界扩散和晶界结合力的影响机理为基础, 比较并分析了磷对合金组织结构和力学性能的各种影响机制。

**关键字:** 微量元素; 磷; 铁镍基合金

## Effect of trace P on Fe-Ni based wrought superalloy

HU Zhuang-qi, SUN Wen-ru, GUO Shou-ren, LU De-zhong

(The Institute of Metal Research, Chinese Academy of Science,  
Shenyang 110015, P.R.China)

**Abstract:** The effects and mechanisms of phosphorus on Fe-Ni based wrought superalloys are reviewed. The property and source of phosphorus, and its control during the melting of alloys are briefly depicted. The segregation of phosphorus and its effects on the solidification of alloys are considered. Three types of changes due to the addition of trace elements are described: energetic (lowering of surface energy), kinetic (changing diffusivities), mechanical (weakening the interface). Accordingly, the various mechanisms by which phosphorus influencing the microstructure and mechanical properties of alloys are outlined and discussed by comparison.

**Key words:** trace element; P; Fe-Ni based alloy

电 话： 0731-88876765, 88877197, 88830410 传真： 0731-88877197

电子邮箱： [f-ysxb@mail.csu.edu.cn](mailto:f-ysxb@mail.csu.edu.cn)