



## 论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.33 No.1 Feb.2002

[PDF全文下载] [全文在线阅读]

文章编号: 1005-9792(2002)01-0045-04

### 加热速度对TiAl基合金显微组织的影响

彭超群, 黄伯云, 贺跃辉

(中南大学粉末冶金国家重点实验室, 湖南长沙410083)

**摘要:** 利用Gleeble-1500热模拟机研究了加热速度对铸态TiAl基合金显微组织的影响, 提出了在相界处形成层片组织的物理模型. 结果表明, 5次快速加热循环热处理可将TiAl基合金晶粒细化至50 $\mu\text{m}$ 以下; 单次快速加热可破坏TiAl基合金层片组织的稳定性, 使层片组织破碎. 快速加热条件下的重结晶形核以晶界形核为主, 并可在相界发生.

**关键字:** TiAl基合金; 快速加热; 循环热处理; 组织细化; 形核

### Effects of heating rate on microstructure of TiAl-based alloy

PENG Chao-qun, HUANG Bai-yun, HE Yue-hui

(State Key Laboratory for Powder Metallurgy, Central South University, Changsha 410083, China)

**Abstract:** The effects of heating rate on microstructure of a TiAl-based alloy was studied by using the Gleeble-1500 thermal simulator; a physical model is proposed for explaining the formation of fine lamellae at the phase interfaces. The results show that 5 times rapid heating cyclic heat treatment can refine the grain size to less than 50 $\mu\text{m}$ ; single rapid heating treatment can significantly damage the structural stability of the lamellae. The optical microstructure observations show that during rapid heating, the neocrystallization nucleation mainly occurs at the grain boundaries and also at the phase interfaces.

**Key words:** TiAl-based alloy; rapid heating; cyclic heat treatment; microstructural refinement; nucleation

## 有色金属在线

## 中国有色金属权威知识平台

地 址：湖南省长沙市中南大学 邮编： 410083  
电 话： 0731-88879765 传真： 0731-88877727  
电子邮箱： zngdxb@mail.csu.edu.cn 湘ICP备09001153号