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## 固溶态Ti(50+x)Pd30Ni(20-x)合金中的相变特征

田青超<sup>1</sup>, 吴建生<sup>1</sup>, 洪建明<sup>2</sup>

(1. 上海交通大学 材料科学与工程学院, 上海 200030;  
2. 南京大学 现代分析与测试中心, 南京 210093)

**摘要:** Ti(50+x)Pd30Ni(20-x)合金在固溶处理之后存在2次相变, 使用DSC, XRD, DMTA以及TEM等手段研究了这种相变。结果表明, 低温马氏体为单斜的B19'相, 而高温母相则为体心立方的B2相, 在相变过程中点阵的切变以正交的B19马氏体相作为过渡。低温马氏体的弹性模量比高温奥氏体的弹性模量高10GPa。随着频率减小, 阻尼增大。在较高的频率下, 弹性模量曲线和阻尼曲线对于过渡相的存在反映不明显。室温下马氏体为细狭的板条状, 当温度达773K时, 合金中有明显的析出物产生。

**关键字:** 高温形状记忆合金; 相变; 弹性模量

## Characteristics of phase transformation in Ti(50+x)Pd30Ni(20-x) alloys under different heat treatment conditions

TIAN Qing-chao<sup>1</sup>, WU Jian-sheng<sup>1</sup>, HONG Jian-ming<sup>2</sup>

(1. School of Materials Science and Engineering,  
Shanghai Jiaotong University, Shanghai 200030, P.R.China;  
2. Modern Analysis and Measurement Centre, Nanjing University,  
Nanjing 210093, P.R.China)

**Abstract:** A two-stage phase transformation has been observed in Ti rich Ti(50+x)Pd30Ni(20-x) alloys under solution treatment condition. DSC, XRD, DMTA and TEM were employed in the experiments. It is confirmed that the room temperature martensite is of monoclinic B19' structure, the high temperature austenite is of B2 structure, while B19 martensite acts as a media in the process of phase transformation. The elastic modulus of B19' martensite is 10 GPa higher than that of B2 phase. The damping properties decrease with the increase of vibration frequency. Long, thin martensite plate characterizes the microstructure of the alloys, when the specimen is heated to 773K, much precipitation occurs.

**Key words:** high-temperature shape memory alloy; phase transformation; elastic modulus

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地 址：湖南省长沙市岳麓山中南大学内 邮编： 410083

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)