

# APPLICATION SHEET

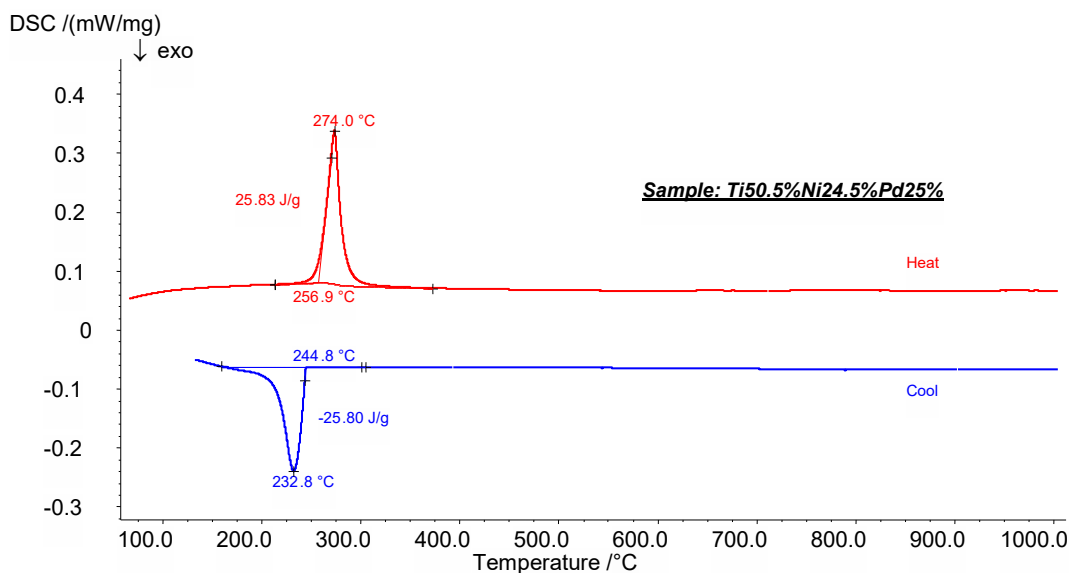
Metals/Alloys · Electronics/Medical  
DSC 404 Pegasus®

## TiNiPd Alloys

### Introduction

The exciting field of smart materials is expanding rapidly, with one of the most interesting areas being that of shape memory alloys. A shape memory alloy (SMA) can undergo substantial plastic deformation, and then be triggered into returning to its original shape by the application of heat. From early applications such as greenhouse

window openers in which an SMA actuator provided temperature-dependent ventilation, through mobile phone antennas made of a super-elastic SMA, the list of applications has increased enormously throughout the 1990s. Medical applications of SMAs, using their superelastic and shape recovery properties, are particularly interesting and are growing rapidly.



### Test Conditions

Temperature range:	RT ... 1000°C
Heating/cooling rates:	10 K/min
Atmosphere:	Argon at 50 ml/min
Sample mass:	194.4 mg
Crucible:	Pt with alumina liner
Sensor:	DSC $c_p$ type S

### Test Results

Using DSC systems capable of operation under pure atmospheres and up to high temperatures, solid-solid transitions occurring in shape memory alloys at elevated temperatures can be studied without the disturbing influence of oxidation. In the current alloy, the solid-solid transition is visible at 257°C during heating and at 245°C during cooling. The enthalpy change connected with the transition was 25.8 J/g