



Nickel free Titanium Based Shape Memory Alloys

By Syed Kamil

LAP Lambert Acad. Publ. Nov 2010, 2010. Taschenbuch. Book Condition: Neu. 220x150x4 mm. Neuware - Biomedical shape memory alloys are required to have a superior corrosion resistance, biocompatibility and stable shape memory properties. Among many shape memory alloys, only NiTi alloys have been widely applied for biomedical applications, because they satisfy the above requirements. However, it has been pointed out that pure nickel is a toxic element and cause nickel hypersensitivity. It is preferable to develop absolutely safe nickel free titanium based shape memory alloys composed of non-toxic elements such as niobium for biomedical applications. In this book, the effect of molybdenum addition in Ti-Nb binary alloy was investigated. Two alloys with varying compositions namely alloy 1 (Ti-26at%Nb) and alloy 2 (Ti-26at%Nb-0.1at%Mo) were developed. After homogenization and cold rolling, samples of dimensions 30×3×0.86 mm were prepared using diamond cutting machine. The prepared samples were solution treated and then subjected to different tests to evaluate their properties. There is slight increase in micro-hardness (Hv) with increase in molybdenum. XRD spectra revealed the presence of two phases in the solution treated samples, -martensite (Ti4Nb) and retained austenite (). 72 pp. Englisch.



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