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# HIGH-PRESSURE STUDY OF Ti50Ni25Fe25 POWDER PRODUCED BY MECHANICAL ALLOYING

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A nanostructured $Ti_{50}Ni_{25}Fe_{25}$ phase (B2) was formed by mechanical alloying and its structural stability was studied as a function of pressure. The changes were followed by X-ray diffraction. The B2 phase was observed up to 7 GPa, and for larger pressures, the B2 phase transformed into a trigonal/hexagonal phase (B19) that was observed up to the highest pressure used (18 GPa). Besides B2 and B19, a segregation of elemental Ni and the formation of $FeNi_3$ were observed. With decompression, the B2 phase was recovered. Values of bulk modulus for the B2, B19, elemental Ni and $FeNi_3$ phases were obtained by fitting the pressure dependence of the volume to a Birch–Murnaghan equation of state (BMEOS).