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Phase stability and martensitic transformation of TiPt shape memory alloys

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Abstract content
 (Max 300 words)

The TiPt structure with the B2 phase has been reported to undergo a reversible displacive transformation to B19 martensite at about 1000°C. However, this system could serve in principle as the basis of high-temperature shape memory alloys. Molecular dynamics study of martensitic transformation in platinum and titanium alloy was performed to investigate the effect of temperature dependence on B2, B19 and B19' structures at 50 at.%Pt. The NPT ensemble was used to determine the properties of these systems and we found good comparisons with recent experimental work. It was found that the thermal expansion coefficient against temperature shows potential martensitic change when B19 and B19' were heated to extreme high temperatures of 500K up to 2000K.

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