Properties of TiAl and TiAlN Thin Films by Pulsed Cathodic Arc

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Abstract

TiAl and TiAlN films have been attracted as a promising alternative to TiN for superior oxidation resistance and better cutting performance. Among various deposition processes macroparticle-free pulsed cathodic arc emerged as a predominant method for the deposition of nanometer-ranged ultra thin metallic alloy films. In this study, for the evaluation of the effects on particle-free configuration in the pulsed cathodic arc process, TiAl and TiAlN films were synthesized from an alloyed TiAl target at various N_2 partial pressures, and their deposition rate, composition, structure and crystal phase will be investigated.

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