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Influence of Thickness on Properties of TiN/Ti Coatings

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- Abstract: Plasma physical vapour deposition (PVD) technology is used to deposit TiN/Ti coatings on Ti-6Al-4V alloy. A kinetic energy controlled cycling equipment was applied to investigate the influence of thickness on the mechanical properties of TiN/Ti coatings. The failure mechanism of coatings was analyzed through damage characteristics, impact mechanics response, and stress distribution. The results show that dynamic response of coatings is affected by the structure, and the energy absorptivity increases with the impact force. The spalling of coatings is related to the high stress gradient within the hard layer and the interface between the bonding layer and the transition layer.

Keywords
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