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Nanocomposite multilayer binary nitride coatings based on transition and refractory metals: Structure and properties(Review)(Открытый доступ)

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One area of constant interest in many fields of industry is development of functional multilayer coatings that possess excellent performance characteristics. That is why in our brief review the results of studies of structure and properties of multilayer structures based on binary nitrides of transition or refractory metals obtained by various physical-vapor deposition (PVD) techniques are presented. The influence of substrate temperature, substrate bias voltage, bilayer thickness and interface boundaries on the structure of coatings and their properties, such as hardness, plasticity, wear and corrosion resistance, are discussed in detail. This review may be useful for students and growing community of researchers interested in the synthesis-structure-properties relationship in multilayer coatings based on metal nitrides. © 2019 by the authors.