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Structure and properties of combined multilayer coatings based on alternative triple nitride and binary metallic layers(Book Chapter)

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Просмотр дополнительных организаций

Краткое описание Просмотр приставочных ссылок (60)

Combined multilayered coatings based on alternative triple nitride and binary metallic layers were deposited using vacuum-arc evaporation of a cathode. (TiMo)N/TiMo, (CrMo)N/CrMo, (CrZr)N/CrZr, (TiCr)N/TiCr and (MoZr)N/MoZr multilayer coatings were fabricated under the same deposition conditions, while bias potential was -200 V. Total thickness of the coatings was around $54\ \mu\text{m}$, while bilayer thickness was around 900 nm and we had 60 bilayers in each coating. Thicknesses of triple nitride and binary metallic layers were 750 and 150 nm respectively. Various methods of analysis were used for coatings characterization, including, but not limited to, XRD, SEM, EDS, TEM, HR-TEM, SIMS, as well as indentation tests. Forming of two-phase state with (111) and (200) preferable orientation was found in the coatings. Vickers hardness HV0.1, HV0.5 and HV1 of the coatings varied from 2347 to 2912, 2077 to 2584 and from 1369 to 2327 respectively, which makes them perspective for application as hard protective coatings. © Springer Nature Singapore Pte Ltd. 2019.