

Experimental and numerical study of multicomponent nitride coatings based on TiAlSiY fabricated by CA-PVD method(Article)

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We report technical parameters of the deposition of multielement nitride protective coatings based on TiAlSiY by CA-PVD method and fractal analysis of their surfaces that are presented by the scanning electronic microscopy (SEM) images. Numerical analysis of the digital images was performed within two-dimensional multifractal detrended fluctuation analysis. Numerical models of surfaces of studied samples were built from their SEM images and generalized Hurst exponents and multifractal spectrums were calculated for all obtained structures. The performed calculations showed the widest range of Hurst exponent for TiAlSiY coating, which can indicate the highest relative roughness of its surface. © 2019 IOP Publishing Ltd.