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Response Surface Methodology for Optimum Hardness of TiN on Steel Substrate

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Abstract : Hard coatings are widely used in cutting and forming tool industries. Titanium Nitride (TiN) possesses good hardness, strength and corrosion resistant. The coating properties are influenced by many process parameters. The coatings were deposited on steel substrate by changing the process parameters such as substrate temperature, nitrogen flow rate and target power in a D.C planer magnetron sputtering. The structure of coatings were analysed using XRD. The hardness of coatings was found using Micro hardness tester. From the experimental data, a regression model was developed and the optimum response was determined using Response Surface Methodology (RSM).

Keywords : hardness, RSM, sputtering, TiN XRD
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