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Titanium Nitride Coatings Prepared by Reactive Sputtering on Steel SAOULA NADIA, CDTA, DMIL, PO. Box 17 Baba hassen, Algiers, Algeria, HENDA KARIM, CDTA, KESRI RAFIKA, USTHB, LECTCM, PO. Box 32 El Alia, BabEzzouar, Algiers, Algeria — Titanium nitride is used as coating on cutting tools because of their excellent mechanical properties such as high hardness and high wear resistance. Its chemical inertness gives rise to its application as corrosion protective coating. It's an excellent barrier material with good electrical conductivity in various metallization structures of advanced microelectronic devices. Finally, the golden glance of TiN established its use as decorative coating in the fashion jewellery and in architecture. The deposition process studied, in this work, use RF sputtering of a pure titanium target in a reactive nitrogen/ argon gas mixture, at various conditions. The substrates are steel. The main variables investigated are the composition of the Ar/N_2 gas mixture, the total pressure, the deposition time and the discharge power. The aim of this work is to evaluate the performances of a local-made RF plasma reactor. The attention was given to the study of the structure, the composition of titanium nitride deposits, which have a considerable influence on their hardness. The deposited coatings were characterized by X-ray diffraction, energy dispersive spectroscopy (EDS) and micro-indentation.

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