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Mechanism of Ti99.2 titanium unconventional ion nitridingTadeusz Fraczek¹, Jerzy Michalski², Michal Olejnik¹, Jaroslaw Jasinski¹¹Czestochowa University of Technology, Czestochowa, Poland ²Institute of Precision Mechanics, Warsaw, Poland

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The influence of Ti99.2 titanium ion nitriding on its surface layer properties is presented in this article. Results with regard to iron ion nitriding mechanism allow to elaborate new ion nitriding mechanism of Ti99.2. titanium for different glow discharge areas. Previous conventional ion nitriding models (e.g. the earliest Kölbel's model) refer to iron nitriding and may not be correct in case of other metallic materials especially by active screen method. It is found that an active screen cathode nitriding leads to nitrogen concentration and nitrides relative volume increase in the titanium surface layer. The factors which mainly determine qualitative and quantitative characteristics of phenomena during active screen nitriding is high concentration and energy of nitrogen ions which interact with substrate.

KeywordsTi 99.2 titanium
ion nitriding
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