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RESEARCH ON CORROSION RESISTANCE OF DECORATIVE AND PROTECTIVE ION PLASMA COATINGS ON TI-AL-N BASE

S.BOGDANOVA, K. SAVKOVS, M.URBAHA, G.RIJKURIS

Riga Technical University
Institute of Aeronautics
1 Kaļķu str., LV-1658, Riga, Latvia.
e-mail: gints_rijkuris@inbox.lv

ABSTRACT

In the vacuum deposition technology of ion-plasma coatings in advance is difficult to predict the outcome: whether a result is coating with desired decorative properties, whether it has necessary structure, chemical composition, high adhesion etc.

For the complex development process sequence of technological operations and experimental experience choosing the correct mode of the equipment is required. In addition to the decorative properties of coatings, some protective mechanisms should be added, such as corrosion resistance to changes in temperature, corrosive environments etc. The main knowledge of these problems is based on the chemical and physical properties of the deposited materials.

[*Keywords:* decorative coatings, ion plasma coatings, corrosion.]

GENERAL

Ion-plasma deposition of coatings are developed at the modernized vacuum installation NNV6, 6-I. During the experimental studies two plasma sources were used - an electric arc vaporizer (Ti) and magnetron (Al).

When depositing using arc evaporation electromagnetic movement stabilization, the focus of the cathode spot on the front surface of the evaporated cathode and separation of the flow of material deposited on the droplet phase was provided. Using two independent sources of deposition, as well as controlled supply of reaction gas (N) in the vacuum chamber allowed optimizing the composition of deposited multi layer.

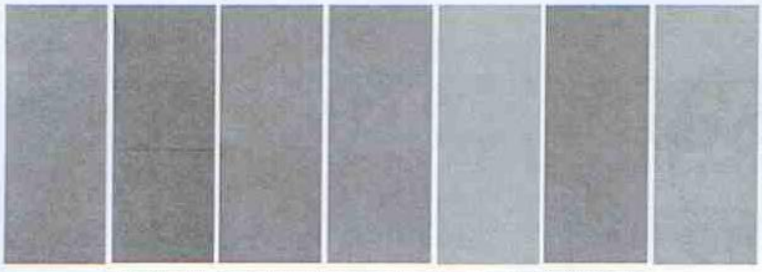

FIGURE 1. ION PLASMA DECORATIVE COATINGS COLOR PALETTE

To ensure the specular surface of the coatings polished glass was used as a base. In order to determine the chemical composition of developed coatings (see Fig. 1) produced energy dispersive micro roentgen spectral analysis was carried out.