

## **Production Experience of Galvanic Composite Nanodiamond-Modified Metal Coatings**

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Chromium coating technology with the use of detonation ultradispersed diamonds (UDA) was first developed at NPO ALATI (now FSUE FRPC ALTAI) in the 80s. The progress in this area for the next 20 years was due the investigations performed by the research centers like FSUE FRPC ALTAI, SKTB TEKHNOLOG, NP ZAO SINTA (Belarus) etc., and associated with G.V. Sakovich, P.Ya. Dedkov, G.K. Burkat and other scientists. Thus, there has been increase in the number of scientific schools involved in this area and the range of further application of metal coatings developed has widened.

At present in connection with government policy to support the nanoindustry growth in Russia, the development of composite electrochemical UDA-based coatings reached a new scientific and production level.

Investigations of Ni and Cu electroplating and electroless nanodiamond-modified coating technologies performed by FSUE FRPC ALTAI showed high efficiency of UDA introduction in electrolytes to increase microhardness, wear resistance and corrosion resistance of the coatings. The physical model of coating deposition at ultradispersed diamond phase presence was developed in the FSUE FRPC ALTAI laboratory UDA.

The developed technology of UDA recycling from waste electrolytes allows cost cutting thus efficiency and profitability of the composite coating production can be improved.