

ABSTRACT

Thesis: 82pages, 33drawings, 10tables, 39sources ofliterature.

Aim:studyofthestructure,

phasecompositionandpropertiesofthesurfacelayersofsteelmark
aftermultistageelectric-sparkalloyingbyaluminumandgraphite.

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Research methods: microstructural, microhardness, X-ray,
masstransferkineticsanalysis and tests for wear resistance.

Research subject strengththesurfacelayersofthesteel Mark 3 aftertheelectric-
sparkalloyingby aluminumandgraphiteanodes.

Scientificnovelty:Foundthatmultistageelectric-
sparkalloyingbyaluminumandgraphite increasesthelengthofthealloyedzoneto10–
30 mcm andincreasesmicrohardness (6,7–11,2GPa).

PracticalmeaningInvestigatedalloysafterthermalelectric-
sparkalloyingacquirepropertiesthatservetoextendthe
servicelifeofmachinepartsandmechanisms,
especiallythoseworkinginsevereconditions. Due tolayeredalloyingit is possible to
receivecoverage ofrequiredcompositionandthickness,
itisimportanttorestorethedimensionsofinstrumentsafterwear.

MULTISTAGEELECTRIC-SPARK ALLOYING, STEEL MARK 3,
ALUMINUM, GRAPHITE, FUNCTIONAL COATINGS