

## ABSTRACT

The master's dissertation contains: 94 pag., 11 fig., 33 tab., 46 sources, 1 addition.  
ELECTRODE, ELECTRON-BEAM MELTING, CONTACT SPOT WELDING,  
PITOMIC ELECTRICAL RESISTANCE.

Creation of composites for improving the efficiency of contact spot welding of copper-based alloys with the inclusion of eutectic alloy of the system  $\text{LaB}_6\text{-TiB}_2$ , which allows the electrodes to have high stability and the ability to preserve the original shape, size, as well as properties and characteristics as a result of surface heating up to  $600\text{ }^\circ\text{C}$  and with shock compression up to  $5\text{ kg / mm}^2$ .

The purpose of the work – to determine the influence of the dispersion of  $\text{LaB}_6\text{-TiB}_2$  powders on the physical and mechanical properties of the composite  $(\text{LaB}_6\text{-TiB}_2)\text{-Cu}$ .

The object of the study – composites based on copper with the inclusion of eutectic alloy of the system  $\text{LaB}_6\text{-TiB}_2$ , obtained by the method of electron-beam melting.

The subject of the study – to conduct studies on microstructure formation and properties of a composite  $(\text{LaB}_6\text{-TiB}_2)\text{-Cu}$  with the inclusion of an eutectic alloy  $\text{LaB}_6\text{-11\% TiB}_2$ .

The study of microstructure and physical-mechanical properties was carried out by means of metallographic and micro-ray diffraction analyzes (NEOPHOT-21, REM 106H), a two-dimensional analysis and determination of specific electrical resistance.

In the work the technologies of obtaining of composites, microstructure and properties are investigated. The influence of the dispersion of powders of the eutectic alloy  $\text{LaB}_6\text{-11\% TiB}_2$  on the physical and mechanical properties of the composite  $(\text{LaB}_6\text{-TiB}_2)\text{-Cu}$  has been established. The introduction of the principle scheme for obtaining such a composite and its direct use will allow the wide development of point welding, which in turn will help in solving many problems in various industries.