ABSTRACT

Attestation bachelor work: 101 pages, 42 figures, 8 tables, 38 literature sources

Purpose of the study: to research the effect of thermomagnetic treatment on structure, phase composition, magnetic and mechanical properties of the Cu-Al-Mn alloy.

Object of the study: the processes of formation of structure and phase composition of samples of Cu-Al-Mn alloy.

Experimental methods: melting in the induction furnace, heat treatment (homogenizing annealing, hardening, aging), thermomagnetic treatment (aging in a magnetic field), X-ray phase analysis, atomic forse microscopy, ballistic method, X-ray fluorescent analysis, microhardness analysis, metallographic analysis.

Scientific innovation: thermomagnetic treatment stimulate the separation of ferromagnetic particles β_3-phase (Cu_2AlMn), due to the depletion of manganese in the high-temperature β_1-phase $(Cu,Mn)_3Al$.

Practical application: The results are of practical importance for the development: filters for a clean blood, fixing pins for fixing of prosthetic device, sealing the integrated circuit.

THERMOMAGNETIC TREATMENT; FERROMAGNETIC Cu-Al-Mn β3-PHASE; Cu_3Al β1-PHASE; TEMPERATURE HYSTERESIS; THE ONSET TEMPERATURE OF MARTENSITE TRANSFORMATION; THERMOELASTICITY; SHAPE MEMORY ALLOYS.