

ABSTRACT

The work contains: p. - 105, draw. - 30 table. - 6, sources - 70.

Object of study - cored composite quasicrystalline alloy system Al Fe Cr.

The aim is to study experimental structure, phase composition and mechanical properties of coated quasicrystalline alloy $\text{Al}_{94}\text{Fe}_3\text{Cr}_3$ obtained by cold spray (CS).

With complex highly informative methods of physical material (X-ray analysis, electron microscopy and modern indentation) The phase and structural transformations in powder composite quasicrystalline alloy system Al-Fe-Cr, consolidated by (CS).

Given the nature of metastable phases and QC supersaturated solid solution α -Al, obtained by the rapid solidification of molten urgency is lowering the temperature of intermediate powder consolidation process to store content quasicrystalline phase and as a consequence - increased mechanical properties of the consolidated alloy.

For example $\text{Al}_{94}\text{Fe}_3\text{Cr}_3$ alloy experimentally proved the effectiveness of the technique CS to preserve the metastable quasicrystalline particles dispersed and phase. Without changing its shape and size quasicrystall particles remain in the structure of plastically deformed powder coating particles, forming a dense cover in the absence of defects such as cracks and bundles.

Keywords: QUASICRYSTALL PARTICLES, ALLOY Al-Fe-Cr, COLD SPRAY, INTERMETALLICS, PHASE TRANSFORMATIONS.