

ABSTRACT

The work contains 101 pages, 39 figures, 11 tables, 59 references to the literature.

Object of research - quasicrystalline $\text{Al}_{94}\text{Fe}_3\text{Cr}_3$ alloy obtained by dispersing the melt water jets and consolidated under high pressure.

The aim is to study the influence of high pressure on the structure, phase composition and mechanical properties of the composite $\text{Al}_{94}\text{Fe}_3\text{Cr}_3$ alloy.

Methods and apparatus: obtaining of the quasicrystalline powder by dispersing the melt water jets and compaction under high pressure was conducted by research facilities at the Institute for Problem of Material Science of NASU. With complex highly informative methods of physical material (electron microscopy, X-ray diffraction and micromechanical testing) studied changes in the structure, phase composition and mechanical properties of powder quasicrystalline Al-Fe-Cr alloy during consolidation at high pressure.

Keywords: QUASICRYSTALLINE PARTICLES, POWDER Al- Fe- Cr ALLOY, METASTABLE PHASE, STRUCTURE, PHASE COMPOSITION, MECHANICAL PROPERTIES.