ABSTRACT

The master dissertation contains: 118 p., 36 figures, 38 tables, 38 sources.

REDUCTION, ALUMINUM, CONDUCTIVITY, FeAl, MICROSTRUCTURE, PHASE COMPOSITION, MICROWAVE.

Creation of functional materials tribo technical purpose for current collectors from powder alloys based on aluminum and iron will reduce its cost.

The purpose of the work is to develop the technological process of obtaining a compact powder material of the iron-aluminum system. To achieve the goal, it was necessary to solve the following tasks:

– Obtain samples based on Al-Fe selected technological processes;

– Identify physical and mechanical properties and compare them with already known.

The object of research: compact powder material of the system aluminum - iron.

Subject of research: creation of a material on the basis of aluminum and iron for use as a current collector.

The study of structure, physical and mechanical properties, chemical and phase composition was carried out using X-ray and X-ray structural analysis, translucent and scanning electron microscopy.

It is established that the investigated technologies of obtaining materials on the basis of aluminum alloys - iron contribute to obtaining with a dimensional structure and properties. From the economic point of view, it is most suitable to obtain powdered alloys by mechanical dispersion of the melt, pressing products at a pressure of 700 MPa, followed by sintering in a muffle furnace and a hydrogen medium at a temperature of 800 ^{0}C for 30 minutes.

On the topic of the dissertation research, an article was published in professional editions, 7 theses of reports at the All-Ukrainian and International conferences.