

Scientists created nanopowders for the synthesis of new aluminum alloys

The research team of Siberian Federal University together with the scientists of the Krasnoyarsk Scientific Center of the SB RAS has developed a method for the synthesis of aluminum alloys, the use of which will allow the creation of new types of products with improved characteristics based on aluminum.



The project received support from the Regional Science Foundation and the Russian Foundation for Basic Research in the competition for oriented interdisciplinary research in 2016. The results of the research were published in the journals "Physics of the Solid State", "Vacuum" and "Journal of Superconductivity and Novel Magnetism".

The authors of the project say that with the help of this technology special nanopowders are produced, which are used as modifying additives in the production of aluminum alloys. This method will significantly improve the operational properties of the foundry products, and reduce the energy costs for its final processing.

Igor Karpov, head of the laboratories of the UNESCO Science and Education Center "New Materials and Technologies" of SibFU, says that aluminum and iron obtained using the technology can be widely used in engineering.

*"The technology of processing aluminum with the use of nanopowders opens up the fundamentally new opportunities for the production of composite materials with improved operating characteristics, — says **Igor Karpov**. — The main consumers of the developed technology are the enterprises of metallurgy and machinery, specializing in the production of cast products from aluminum alloys".*

Currently, scientists are conducting research on a unique scientific unit "Complex of plasma-chemical synthesis and analysis of nanostructures," which is included in the list of modern research infrastructure in Russia. The key customer of the project is RUSAL, one of the world's largest producers of primary aluminum and its alloys. The introduction of the technology is planned on the basis of the "Aluminum Valley" — the industrial and economic zone of the enterprises of the aluminum industry in the Krasnoyarsk Territory.

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