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1. **S.P. Pavlinich, S.V. Bakerin, M.V. Zaitsev, A.K. Subkhankulovo, A.V. Colicin.** To the question of manufacture of geometrically complex thin-walled castings of intermetallic  $\gamma$ -TiAl alloy for aircraft engine

Discusses the use of titanium intermetallic splava of the responsible castings for aircraft engines. Are result comparative studies of the production of blades of methods of deformation of the casting. It is shown that the preference for the parts of the blades, HPC and LPT gas turbine engines, to give a shaped casting. For the serial production of these parts and requires further research processes.

**Keywords:** gas turbine engines, blades casting, intermetallics.

2. **V.I. Nikitin, K.V. Nikitin, D.G. Chernikov, T.A. Sivkova, I.Yu. Timoshkin.** Hereditary influence of structure of metal charge on the structure and properties of cast and wrought hypereutectic silumin

The results of studies on the hereditary influence of the cast structure of hypereutectic silumin on its structure after rolling are presented.

**Keywords:** hypereutectic, silumin microstructure, pig alloy, hereditary influence, rolling.

3. **D.A. Boldyrev, S.G. Prasolov, L.I. Popova, S.V. Davydov** Investigation of the pre-modifying effect of silicon carbide on graphitization processes and properties of gray cast iron.

The materials used for preliminary graphitizing treatment of cast iron melt (premodification), of which silicon carbide has a technical and economic advantage, are considered. The features of the graphitizing effect of silicon carbide in the process of preparing the melt of gray cast iron on its structure and properties in standard cylindrical samples and castings of clutch discs are analyzed. It is shown that its graphitizing effect on the cast iron melt begins to be partially manifested already at the stage of furnace introduction and enhances the action of the main graphitizing modifier during subsequent ladle processing as a result of reducing the content of dendritic graphite in the microstructure.

**Keywords:** silicon carbide, graphitizing modification, dendritic graphite.

4. **D.A. Volkov, A.D. Volkov, A.V. Efimenko** Technology and equipment for the production of large grinding balls.

It is presented new prospective technologies for the production of large grinding balls by casting in a lined chill mold; the advantages are described. It is presented the technical and technological characteristics of a six-position rotary chill mold machine for lined chill casting as a competitive analogue in the mass production of large grinding balls, in comparison with the Chinese lined chill mold casting line and DISAMATIC line.

**Keywords:** casting grinding balls, lined chill mold, rotary chill mold machine.

5. **M.A. Ioffe, R.D. Farisov, D.A. Mityaev, V.A. Gromak** Improvement of the process of preparation of circulating sand and clay mixtures.

Describes an improved cooling scheme of circulating sand-clay mixture, tested at the foundry of «KAMAZ». The scheme involves the supply of water to the chiller under high pressure in the form of finely dispersed sprayed moisture. Application of the improved scheme provides reduction of clay component losses by more than two times; complete suppression of backflow of the mixture from the cooler; reduction of dust concentration in the air after the cooler by more than 25 times.

**Keywords:** common molding sand, mix preparation, the preparation and cooling of the circulating mixture, finely dispersed moisture, chiller, the clay component, dust concentration.

6. **I.A. Strelnikov, D.A. Pestryaev, Sh.V. Sadetdinov** Modification of peat-containing heat-insulating mixtures for warming the profits of casting.

The results of the study on the modification of peat-containing thermal insulation mixture for insulation of castings profits with boric acid, lithium tetraborate, sodium tetraborate and potassium tetraborate are presented. Peat-containing thermal insulation mixtures with technological characteristics corresponding to the requirements of the foundry practice have been developed.

**Keywords:** thermal insulation mixture, castings composition, peat, boric acid, lithium tetraborate, sodium tetraborate, potassium tetraborate, thermal conductivity coefficient, shedding, formability, strength.

7. **A.Yu. Barinov, V.N. D`yachkov, K.V. Nikitin, I.Yu. Timoshkin, B.N. Tukabajov, A.A. Demin** Making the mould by methods of 3D printing for obtaining wax models.

The results on the use of 3D printing technologies in the manufacture of molds for wax models of castings in investment casting are presented.

**Keywords:** additive technologies, mould, investment casting.