1. **B.A. Kulakov, V.K. Dubrovin, A.V. Karpinsky, O.M. Zaslavskaya.** Features of intermetallic casting titanium alloys

Annotion. Casting titanium intermetallic alloys is difficult due to the high chemical activity in the liquid state. When interacting with a silica-containing casting mold, a hard-to-remove modified layer of increased hardness and brittleness (alpha-case) is formed on the castings, which reduces the operational properties of the casting. If aluminum in the alloy is about 30 %, and when melted in a vacuum, it can evaporate intensively. It is proposed to use molds for casting from monocorundum, and melting is carried out in an atmosphere of protective argon gas.

Keywords: intermetallic titanium alloy, casting, monocorundum casting mold, modified layer, protective atmosphere, argon, diffusion.

2. **E.V. Panfi lov, I.A. Larionov, V.I. Martemyanov, M.N. Kandaurova, R.I. Mukhamadeev, D.R. Afl yatonov.** Features of the technology of manufacturing gears of the intermediate shaft of KAMAZ vehicles from special cast iron (high-strength ausferrite) in a Foundry

Annotation. The technology of production of castings of gears of the intermediate shaft of KAMAZ vehicles from high-strength ausferrite cast iron is given. Cast iron was melted in induction furnaces, modification of cast iron to obtain a spherical graphite shape was carried out in a ladle. To prevent turbulence in the movement of the metal jet in the casting, and to retain non-metallic inclusions, foam ceramic filters with optimal sizes of gate channels are installed to eliminate gas locking. 3D modeling of casting processes was used to work out the technological parameters of casting production.

Keywords: gear, high-strength cast iron, spherical graphite, modeling.

3. **I.S. Kuroshev, A.S. Kurchakova.** The best available technologies. Principles of ecological and technological regulation of the activities of ferrous metallurgy objects of the I category

Annotation. Currently, the Russian Federation is undergoing a comprehensive and phased transition to a new regulation based on the principles of the best available technologies (BAT). The article discusses the elements of a new regulatory structure, including one of the main mechanisms for the introduction of the best available technologies — information and technical manuals on BAT. The article describes the structure and content of reference books, provides information on the procedure for their development, and outlines the goals for the development in 2023 of an information technical reference book on the best available technologies for the foundry production of ferrous metal products.

Keywords: the best available technologies, information and technical guide to the best available technologies, technological indicators, foundry production.

4. **A.A. Bannikov.** Import substitution using 3D printing and 3D scanning

Annotation. The accompanying problems in the import substitution of castings production are considered.

Keywords: «digital» forms, model, detail.

5. **I.S. Golovunin.** New opportunities for foundry production using industrial 3D printer

Annotation. The features and advantages of the QuickCast technology for casting on smelted and burnt models are considered.

Keywords: smelted model, wax model, burnt model.

6. **A.M. Embulaev.** Just about the complicated: how do 3D printing technologies contribute to the process of intellectualization of the foundry industry?

Annotation. The advantage of additive technology PCM (Patternless Casting Manufacturing) is considered, which in interpretation means printing molds without model tooling. This technology is widely used and allows you to print molds without model tooling.

Keywords: additive technologies, casting mold, castings, models.

7. **A.S. Lichtner.** Application of 3D-printing of ceramic molds for precision casting

Annotation. The technological process of 3D printing of high-quality and high-precision ceramic products is considered. Currently, ceramics are used for the manufacture of a wide range of products in various industries.

Keywords: ceramics, suspension, heat treatment, additive installation.

8. **A.A. Berstnev, V.A. Shchapov, L.A. Khasanova.** Experience in the use of graphite drain rings in the manufacture of castings from heat-resistant alloys

Annotation. The possibility of using «drain rings» made of electrode graphite in the manufacture of castings from heat-resistant alloys is shown. Comparative studies of «drain rings» made of alloys ZhS6U (ZhS6K), VX4L, VKNA2M and electrode graphite have been carried out. It is noted that graphite rings have all the necessary requirements for «drain rings», along with increased heat resistance compared to the widely used in the production of «drain rings» made of heat-resistant alloys.

Keywords: graphite «drain ring», castings, nickel heatresistant alloys, melting.

9. **A.Popov.** Selection of core equipment according to the experience of the German company Laempe

Annotation. The article describes the technology development of serial production of cores from the middle of the 20th century to the present day. The main criteria for choosing a core-making machine are indicated, most technologically advanced methods and modern samples of core-making equipment are shown.

Keywords: core-making technologies, evolution of core-making equipment, Coldbox-Amin process, foundry modernization.