

1. **P. Manzhula.** Digital technologies in production of casting blocks of metal details.

The role of digital technologies in foundry production and their influence on production preparation terms, production standards, level and stability of quality is considered in the article. Use of digital technologies has to provide to founders close connection with introducers, machine processing and metrologists, to help to realize their knowledge, to increase prestige of a profession, to attract young people in foundry production.

Key words: digital technologies in casting, the patternness equipment, optical digitization, monitoring of casting blocks, analysis of casting blocks, analysis of the equipment, reverse engineering, inverse projection, repair of the equipment.

2. **K.V.Nikitin, V.I.Nikitin, I.U.Timochkin.** Hereditary influence of microcrystalline modifiers on the modificability of silumins.

Increasing of the amount of alloying elements in the industrial silumins causes the formation of the structure of excess intermetallic phases. When incorporated in such alloys modifiers above a certain amount occurs the coarsening of structural components, that may cause the decrease of physico-mechanical properties of cast alloys. With increasing amount of alloying elements in alloys of 7.35 % (AK7ch) to 14.3 % (AK10M2N) the optimum flow rate of the modifier of microcrystalline remelting (MMcR) is reduced from 0.6 to 0.3 mass %. Reduces the optimal amount of titanium from 0,05 to 0,01 % when using master alloy AlTi5 and from 0,02 to 0,01 % when using the master alloy AlTi5B1. With increasing silicon content increases the modifying effect of the AlSr10 master alloy, and, in smaller amounts injected into the alloys of strontium. It is shown, that the flow modifiers must be determined based on their ability modifier and the amount of alloying elements in the modified alloy.

Key words: industrial silumins, the amount of alloying elements in the alloy, the modifier of microcrystalline remelting (MMcR), microcrystalline modifying master alloy, optimized flow of modifiers.

3. **V.A. Ivanova, E.O. Shamina.** Study of the influence of environmental conditions on moisture content of foundry coke.

Study of influence of the coke storage conditions on its moisture content. Moisture content influences on coke consumption and gives negative effect to the melting technology of cast iron in cupola. Coke with lumps 80 mm and more is more dependable on changing of environmental conditions compare to coke with smaller than 60—80 mm lumps.

Key words: coke, moisture content, cupola.

4. **Y.U. Shapovalov, A.S. Galibus, A.I. Sudarev, E.M. Glushen, R.K. Nagorny.** Protection of the air of the foundry enterprises against pollution of harmful organic matters.

Information on a problem of pollution of ventilating air of foundry shops and experience of the solution of this problem is provided.

Key words: ventilating air, harmful substances, absorptive and biochemical installations, practice of application.

5. **R.D. Farisov, V.Y. Saprykin, G.F. Vladyko, N.V. Dubrovina, N.N. Elpaeva.** Influence of environmental factors and storage time on the strength of cores made by cold-box-amin process.

Studies of the effect of air humidity and storage time on the strength of cores manufactured using the coldbox-amin process were made in production conditions. It has been established that the strength

characteristics of cores made by cold-box-amin process, when stored in the workshop for a month at a temperature of 15 to 30 ° C and relative humidity from 30 to 75%, remain within the permitted technical requirements irrespective of temperature and humidity fluctuations.

Key words: core, humidity, strength, storage time.

6. **A.V. Golubentsev, A.A. Shatulskiy.** Increasing the durability of castings «Blade» from the nickel hea-tresistant alloy ChS88-VI.

To identify the reasons for the destruction of the blades, studies were carried out. The results made it possible to establish that the main causes are the unsatisfactory state of the blade material in terms of microstructure and mechanical properties. As a result, the material of the blades generates casting pores and microporosity, promoting rapid development and spread of fatigue cracks. It is shown that the technological process of surface modification eliminates the heterogeneity of the alloy ChS88U-VI, which is formed by investment casting into molds heated to a temperature of more than 900°C and provides an increase in the strength characteristics of the alloy.

Key words: heat-resistant alloy, blade, modification, microstructure, properties.

7. **I.V. Uskov, T.R. Gilmanshina, D.I. Uskov.** Study of the influence of graphite quality on the properties of salt cores.

As a result of theoretical and experimental studies, the salt composition of the carbamide-based cores modified with an alloy of sodium and potassium nitrate is proposed to reduce the roughness of the inner cavities of the castings during investment casting.

Key words: surface roughness, salt core, investment casting.

8. **A.D. Shlyaptseva, I.A. Petrov, A.P. Ryahkovskiy, V.S. Moiseev.** Study of the modifying effect of carbon-containing gas Freon 12 on the structure and mechanical properties of the alloy AK12.

The paper presents the results of studying the modifying effect on the structure and mechanical properties of the aluminum alloy AK12 when treating the melt with a carbon-containing gas Freon 12 in various combinations with salts of K₂TiF₆ and BaCO₃. It has been established that the treatment of the alloy AK12 with the carbon-containing gas Freon 12 has a modifying effect on the structure of the alloy, enhances the modifying effect and enhances the mechanical properties of the alloy.

Key words: modification, gas Freon 12, aluminum alloy, structure, mechanical properties.

9. **M.A. Sadokha.** Resource saving in the production of castings from aluminum alloys.

Variants of reducing costs for the production of castings from aluminum alloys are considered In the article. Methods and facilities for purging aluminum alloys with gases and treatment by refining fluxes using a rotating impeller are proposed. It is considered economically expedient to produce aluminum castings in chill molds using the self-filling process. In this case, the melt is pre-poured into the bowl, which is part of the chill (mold), after which the chill from the horizontal position turns to the vertical position, and the melt flows through the feeders into the mold.

Key words: aluminum alloys, refining fluxes using a rotating impeller are proposed