

1. **Y.I. Marukovich, V.F. Bevza, V.P. Grusha. Improving the quality of parts from cast iron by creating of the optimal conditions for the formation of castings.**

The description of fundamentally new highly productive method of casting of hollow cylindrical billets without the use of the rod is given. The analysis of the formation of the cast iron parts and control of the process of structure formation is provided. The operating characteristics of workpieces are show.

Key words: Cast iron, crystallizer, directional solidification (freezing-up), casting, heat treatment, structure, hardness.

2. **K.V. Nikitin, V.I. Nikitin, V.A. Gluchshenkov, D.G. Chernikov. Influence of modifying master-alloys AlZr₄, AlZr₁₀, AlSc₂ and magnetic-pulse treatment on the structure and physical properties of wrought alloys of the system Al—Mg.**

A comparative study on the effect of modifying masteralloys AlZr₄, AlZr₁₀ and AlSc₂ and magneticpulse treatment on density (liquid and solid state) the electrical conductivity (solid) and their macrostructure of alloys AMg5 and AMg6 was carried out.

Liquid of modifying master-alloys poured into a special devices, providing the cooling rate during the crystallization of $\sim 10^2$, $\sim 10^3$ and $\sim 10^6$ °C/sec. Modifying master-alloys were introduced into the melts from the rate of 0.01% on the element-modifier.

Modifying the melt processing additives of modifying master- alloys contributes to the increase of density of the alloy in liquid and solid states. The electrical conductivity of the alloys after the introduction of modifying master-alloys AlZr₄ and AlZr₁₀ reduced. Introduction modifying master-alloy AlSc₂ causes an increase in the electrical conductivity of alloys AMg5 and AMg6. This effect is installed for the first time and requires additional research. It was found that the greatest influence on the physical properties of alloys, in comparison with modifying masteralloys AlZr₄ and AlZr₁₀, has modifying master-alloy AlSc₂, obtained by crystallization in a water-cooled roller mold. Maximum decrease of size of macrograins of alloys were also found with the introduction master-alloys AlSc₂.

Magnetic-pulse treatment (MPT) of the melts at the axial scheme of the impact, as the introduction of modifying master-alloys, contributes to increasing the density of the alloy in liquid and solid States. The electrical conductivity increases after MPT, like after processing of the melt additives of alloys AlSc₂. Decrease of size of macrograins of alloys at magneticpulse treatment is comparable with the addition of master-alloys AlZr₄. On the basis of comparative studies concluded that magnetic-pulse treatment can be attributed to physical methods of modification. Methods of determining the density and electrical conductivity can be used to express evaluation examined the effectiveness of modifying influences.

Key words: alloys of the system Al—Mg, ingots, density, electrical conductivity, modifying master-alloys, magnetic-pulse treatment, macrostructure.

3. **Czeslaw Rudy. Characteristic of process of preparation of compound in rotor mixers.**

The volume and results of the researches conducted in the field of rebonding of moulding compound with use of rotor mixers is presented in the present publication. The purpose of these researches was definition of the course of process and determination of range of values of design operational parameters, optimum because of the received properties of the refreshing compound and a cost of process. Rotor (turbine) mixers are widely used in foundry production for rebonding of the circulating, synthetic compound with ben- tonite. They are a main type of an inventory of the modern stations of processing of forming mix. Their essential advantage is short cycle of the refreshing interfusing.

On the basis of researches of process of preparation of compound it is established, that allocated, partial operations of inter- fusing with use of skating rinks of the mixing rollers (mashing, grinding, overhaul and opening) also take place in rotor mixers. However these processes pass with various speed and with different intensity, than in case of the mixing rollers.

Key words: Molding compounds, forming mixture, brightening of forming mixture, rotor mixers, turbine mixers, bentonite.

4. **Adel Nofal Cmrdi.** Metallurgical aspects of High-Chromium White Iron
5. **Y.I. Karpov, E.Y. Karpova, A.S. Brichkovsky.** To the question of the calculation of the shaker moulding machines at the design stage.

The paper presents methods of calculating the mass and dimensions of the earth pressure balance machines foundry sand shaker when operating machines with dynamic dopolneniem.

Key words: molding machine, the density forms a dynamic seal.

6. **Yu.A. Zinoviev, S.V. Kuznetsov, V.D. Shvetsov, G.I. Belyavskiy, A.M. Schneiberg.** Effect of titanium on technological and mechanical properties of gray iron casting.

The effect of titanium as an alloying agent on the structure, technological, performance and physical and mechanical properties of gray iron casting was studied, as well as inoculation with a new complex inoculant allowing for casting with 73% increased properties without the development of chills in the thin walls.

Key words: mechanical and technological properties of gray iron casting, microalloying with titanium and inoculation with a complex inoculant.

7. **A.G. Verevkin.** Start of the Nobake molding line FAT at the TEMZ plant in Tomsk.

The primary subject of article is start-up of the new Nobake molding line for production of perspective domestic substitutes — cast shutoff valves for the Power of Siberia pipeline. The article also describes various equipment for Nobake and the latest experience of FAT projects realized in Russia.

Key words: foundry production modernization, Nobake technology, domestic cast substitutes, pipeline fittings, adjusting valves.