

1. **V.A. Kukartsev, I.A. Kaposhko, A.V. Kukartsev.** Specialities of use of founding process modelling Programmes.

Data of existing programs of founding process modeling their brief description, solutions of practice use are at this article. The calculation of gating and feeding system from 20X5M/J alloy casting with help of LVMflow modeling programme is made and its most optimal variant is found there. The prime yield is calculated, materials for making of necessary chemical composition of alloy are matched, take into account that eliquation will be made on return and fresh materials, the costs for its buying are determined. Further this calculation's used as the base for ProCAST programs modeling, witch allowed to give more higher prime yield with cost decline of fresh melting stock.

**Keywords:** founding process modeling, gating system, 20X5M/J alloy, prime yield, return, costs, melting stock, LVMflow & ProCAST programs.

2. **A.V. Chaikin, V.L. Savitsky, V.V. Kolpakov, V.A. Chaikin, K.N. Vdovin.** Cutting-edge technology improvement utilizing dispersed deoxidizing mixtures in a ladle furnace unit APK.

The study describes benefits of the technological process for diffusion deoxidation of steel 20 GL (20ГЛ) using a dispersed aluminum-bearing diffusion deoxidizer (RDA). The use of RDA allowed to reduce the smelting time, save electricity and material resources, refine the metal more effectively, and increase the impact strength of steel with a sharp cut at temperatures below zero. The technological process was tested at LLS «BVK».

**Keywords:** Steel, slag, statistical analysis, inoculants, defusive deoxidizing.

3. **E.V. Panfilov, V.I. Martemyanov, A.D. Zorin, A.V. Efremov.** Perspective development of production of aluminum V8 cylinder blocks with power up to 900 hp.

The article shows the possibility to produce high-loaded aluminum cylinder blocks as a replacement of cast iron cylinder blocks.

**Keywords:** cylinder block, core package.

4. **Y.A. Svinoroev, K.A. Batashev, Y.I. Gutko, K.G. Semyonov.** Resins with high heat resistance for steel Castings.

The possibility of modifying phenolic-formaldehyde resins with inoculant which increases their thermal resistance. Thermal resistance of phenolic-based binders is determined by the presence of strong benzene rings forming a mesh spatial structure of the polymer, as well as the resistance of methylene groups. It is established that effective from the viewpoint of improving thermal-oxidative ability of resin, may be the use of resorcin. This substance has two hydroxyl groups and is the most resistant to thermal oxidative degradation. Experimental studies have shown the effectiveness of the use of resorcinol as a modifier increases the thermal resistance of resin binder compositions. This made it possible to achieve heat resistance comparable to furan resins, but not containing furfuryl alcohol, which opens the possibility of improving sanitary and environmental performance in the production of large steel castings. We investigated the possibility of modification of the phenolic formaldehyde resins modifier, increasing their resistance. Temperature-resistant binders on Perley determined by the presence of solid benzene rings, forming a spatial net structure of the polymer, and the stability Milanovich groups. It is established that effective from the viewpoint of improving thermal-oxidative ability of resin, may be the use of retzina. This substance has two hydroxyl groups and is the most resistant to thermo-oxidative degradation. Experimental studies have shown the effectiveness of retsina as a modifier increases the resistance of the resin binder compositions. This made it possible to achieve heat resistance indicators comparable to furan resins, but do not contain furfuryl alcohol, which makes it possible to improve sanitary and environmental performance in the production of large steel casting.

**Keywords:** phenolic-formaldehyde resin, the heat resistance, resochin, thermo-oxidative degradation, residual strength, a furan resin, environmental performance.

5. **T.R. Gilmanshina, I.E. Illarionov, S.I. Lytkina, A.A. Kovalyova, G.S. Sanacheva.** Self-drying coating for cast iron castings.

The paper presents the results of a study of self-drying coating for cast iron castings based on cryptocrystalline graphite. Pilot tests of coatings were carried out in the foundry of Repair and mechanical base of the branch of LLC «RUS-Engineering» in Achinsk.

**Keywords:** coating, casting surface, graphite, viscosity, density.

6. **K.O. Sinyagin.** Implementation of an integrated approach to obtaining sealed castings on the example of the production of a set of castings of the gas meter «Housing» and «Cover».

This article describes the experience gained as a result of an integrated approach to the introduction of equipment and tooling for high-pressure die casting, the purpose of which was to obtain castings of the gas meter «Cover» and «Housing» with the requirements for integrity.

**Keywords:** high-pressure die casting, die, gating system, mould cavity.

7. **L.G. Znamensky, O.V. Ivochkina, A.S. Varlamov, A.N. Franchuk.** Coatings with improved properties for lost foam castings production.

Article contains research results of use of new coatings for steel and cast iron castings, produced with lost foam process. Authors propose the composition of coating for foam patterns, which recommended for production of steel and cast iron castings with lost foam technology.

**Keywords:** Coatings, lost foam technology.