

1. **G.A. Kosnikov, A.S. Eldarkhanov, V.V. Serbin, A.V. Kalmykov.** The influence of vibration and ultrasound treatment on the structure of pattern alloys and silumin.

The results of studies on the influence of vibration and ultrasonic treatment on the structure of camphene, salol and hypoeutectic silumin were presented.

Key words: vibration treatment, ultrasonic treatment; camphene, salol, silumin, structure, crystallization.

2. **V.A. Grachev.** Quality of cast iron melted in gas cupolas as construction material.

The article compares the quality of cast iron produced in coke and gas cupola furnaces, including its gas content and mechanical properties. In the paper, it was established that gas cupola furnace was able to produce high quality cast iron, which was suitable for the casting of critical parts, even with cheap charge of pig iron.

Key words: cast iron quality, gas content, mechanical properties, gas cupola furnace, structural material.

3. **O.P. Chechushkin, A.P. Luts, A.D. Rybakov.** Development of saving technology for production of modifying alloy AlTi3 using combined self-propagating high-temperature and furnace synthesis process.

The results of the development of a saving method for producing a modifying master alloys AlTi3 with improved properties by combining self-propagating high-temperature and furnace kinds of synthesis. Provides an optimum composition of the charge, the technology for executing the method. Show the presence of a modifying effect by the example of alloy AK12M2.

Key words: self-propagation high-temperature synthesis, furnace synthesis, morphology, structure, grain refiner.

4. **Michael Colditz, Seong-Heon Kang, Heung-Soo Kim, Per Larsen.** Brake disc production — is optimization possible?

The article compares different aspects of brake disc production using vertically parted flaskless molding lines and horizontal parted tight flask molding lines. In the first section the vertical molding process demonstrates advantages in terms of investment costs. Furthermore, annual energy consumption of the molding lines in relation to castings produced is discussed, again demonstrating clear benefits from the DISAMATIC-technology. In the second section, a comparison between two molding technologies for the production of brake discs is made on the basis of production data from the South Korean foundry Hyundai Sungwoo. The DISAMATIC molding process, however, offers advantages in terms of tooling costs and energy consumption.

Key words: brake discs, technological equipment, molding technology, vertical molding, horizontal molding, energy savings, scrap of castings.

5. **O.V. Sotsenko, S.Y. Afonin.** 3D computer modelling of locomotive axle-box casting technology.

Computer modeling of locomotive axle-box casting formation is done. Axle-box is produced of constructional non-alloyed steel using different types of risers. The possibility to increase operational properties of castings by means of computer analysis and to improve technological casting process is shown.

Key words: computer modeling, constructional non-alloyed steel, shrinkage defects, surface defects, casting.

6. **V.Y. Goldshtein, S.V. Paschenko, Y.A. Radchenko, V.P. Onischuk. Modification of steel melt by cored wire with new fillers.**

The materials of article provide the results of alkaline-earth and rareearth materials application as modifiers for steel melt treatment. Technical and economical expediency of these modifiers application as fillers for cored wire is shown. The services for development of modification technology and equipment for modifiers input in melt as cored wire are provided.

Key words: modifiers, cored wire, wire feeding machine

7. **Foundry BRAZIL**
8. **G. I. Degtyarenko. Simulation of green sand molding mixture circulation process. Mixture composition management.**

Theoretical basics of green sand mixtures production management during multiproduct castings manufacturing are proposed in the article. Proposed methods allow to make calculation for refreshment of molding mixtures and to forecast the behavior of mixture production system. Mathematical models of molding mixture circulation during application of one of two compositions of molding materials are developed.

Key words: molding mixture, facing mixture, mixture circulation, mathematical model.