

1. **XIII International Foundry Congress and International Specialized Exhibition "Lityo-2017"**.
2. **V.A. Grachev, N.D. Turakhodzhaev. Development of the composition of the flux and melting mode of aluminum waste under flux for production of quality castings.**

This article provides the results of research in development of flux composition for melting of aluminum waste. Scheme of melting unit and results of research in determination of temperature mode for melting process are given. Recommendations about charge materials loading and temperature mode for melting process are provided.

Application of melting unit with graphite electrodes and protection flux allows to reduce irretrievable metal losses, to save energy costs and to improve the quality of melt due to a decrease of oxide and gas inclusions in its composition.

Key words: aluminum, flux, melting, temperature, waste, electrode, coke, slag bath, impurities

3. **V.I. Zolotukhin, E.I. Gordeev, D.A. Provotorov, A.G. Golovko. Modern steel pouring systems for foundries and machine building enterprises.**

LLC NTTs «Vulkan-TM» proposes a range of technical solutions for modernization of foundries at machine building and metallurgical enterprises. There are steel pouring systems and fire proof materials among them: gate systems with electromechanical and hydraulic drive, fire-proof devices for gas blowing of alloys, cored wire and tribe-machines for wire feeding into the bucket with metal, and others. Technical solutions are aimed at improvement of the quality of cast billets.

Key words: gate systems, tribe-machine, fire-proof materials

4. **V.M. Kolokoltsev, I.V. Mikhalkina, A.V. Shevchenko. High temperature treatment of special steel and cast iron melts.**

The article provides research results of high-temperature treatment influence on formation of macrostructure and microstructure and operating properties for high-alloyed ferrous alloys. Steel 4KhV2F-SL and cast iron IChKh28N2 were chosen as samples, as they are most sensible to temperature and time factors of liquid melt treatment. Rationality of application of temperature and time treatment for mentioned alloys during production of high abrasion casting and castings with impact-abrasive wear resistance is shown.

Key words: high temperature treatment, wear resistance, high-alloyed alloys, physical modeling

5. **V.V. Korobeinikov, S.S. Tkachenko. Increasing the efficiency of heating furnaces, manufactured by «TACHTECH-RUS».**

Cost of casting significantly depends on the energy consumption during production and heat treatment of casted and forged blanks. That's why increase of efficiency of thermal equipment is actual. LLL «TACHTECH-RUS» has developed a number of fire-proof and heat-insulating materials, which allow reducing significantly energy consumption while being applied in thermal equipment. Examples and technical characteristics of heating furnaces and heat-insulating materials are given.

Key words: thermal equipment, heat-insulating ceramic fibrous materials.

6. **S.L. Rovin, L.E. Rovin. Small-capacity recycling of iron waste in rotary tilting furnace.**

The article presents the results of research and engineering of rotary tilting furnace (RTF) that is suitable for recycling of disperse metal wastes, including wastes of ferrous metals. Using of RTF

allowed for the first time in the world to carry out intensive and continuous process of solid-liquid-phase reduction of oxides in a single unit. Efficiency of tilting rotary furnaces by heating the dispersed materials is 50—60%. Processing in RTF requires no pretreatment of the wastes. The RTF can be the basic units to create a decentralized, cost-effective recycling of generated and accumulated metal wastes.

Key words: rotary tilting furnace (RTF), recycling, dispersed metal wastes, heat and mass transfer, numerical simulation.

7. E. Budanov. Use of robots in foundry production on basis of Laempe experience.

The article deals with growing trends of industrial robots application, gives description of its advantages (productivity, precision, reproducibility, elimination of human factor etc.) and examples of its use by solving technological tasks in conditions of modern foundry production.

Key words: automation and robotization of foundry production, coremaking machines, Coldbox-Amine-process, modernization of foundry production, modern trends in use of robots.

8. S.S. Tkachenko V.S. Krivitskiy. Potential of St.-Petersburg and Leningrad region foundry.

Analysis of foundry production at St.-Petersburg and Leningrad region for last 30 years is shown. Data on the status and further development of the foundry industry in the region is provided.

Key words: Machine tool building, foundry, prospects of development, import substitution, reconstruction