1. **Koltygin A.V., Nikitina A.A.** Perspectives of polymeric waste, produced by milling production, usage for the production of pattern equipment and core boxes.

Investigated the possibility of recycling plastic chip through the creation of polymer composite based on epoxy resin.Researched the grindability of different plastic chip in rotary and millstone type grinders. For the manufacture of polymer composite determined the efficiency of vibration treatment and compression molding. Obtained material has similar properties with original plastic and suitable for making foundry equipment.

**Key words**: modelplastic,casting,foundry equipment, recycling plasticchips, milling plastics, NC.

1. **Gerasimenko E.A., Konovalov A.N., Belov V.D.** About the solidification of ingots, made of bronze, during casting in iron mold with bottom water cooling.

In this article results of the operation connected to study of possibility of use of computer simulation in the analysis of quality of ingots from Бро10С2Н3 bronze are published. Influence of conditions of solidification of ingots on their density and increase in an output suitable is probed when casting in molds with ground water cooling.

**Key words:** bronze, directional crystallization, computer simulation, density, ingot.

1. **Vacelet P.H., Muniza J., Milekhin V.** New Cold Box binding system without solvents, which decreases the emission during the castings production process

A new high efficient binding system НЕ (High Efficiency), which allows to decrease the quantity of binding materials, needed for production of cores and castings, has been created. Moreover, the new systemic technology SL is developed. It allows decreasing the quantity of additive part 2 to 40%. As a result, the binding mixture contains same mass of active materials (phenolic resin and polyisocyanate), and also the additive with approximately 1/3 mass decrease.

**Key words:** Cold Box binding system, solvent, phenolic resin, polyisocyanate, amine catalyst.

1. **Takhirov A.A., Guschin N.S.** The effect of copper, aluminum and phosphorus on the graphitization of nickel-chromium cast iron

A relationship between the number of inclusions of flake graphite in the metallic base of nickel-chromium cast iron and content of copper, aluminum, phosphorus, silicon, general carbon and chromium in it. It is shown that the combined effect of these elements can reduce the content of silicon and nickel in nickel-chromium cast iron, but for general carbon and chromium, which negatively affect on the release of flake graphite.

**Key words**: flake graphite, stage test, nickel-chromium cast iron, general carbon, chromium, copper, aluminum, phosphorus, graphitization.

1. **Bryukhanova E.V., Golotenkov O.N**. The improvement of ceramic molds production technology for stainless steel casting.

Practice of substitute the traditional materials for ceramic mold’s fabrication with fused quartz, which is the main shape-generating stuff, and water-dispersion binder, which act as an additional stuff.

**Key words:** fused quartz, water-dispersion binder, stainless steel, surface defects.

1. **Oborin L.A., Tyagunov G.V., Cherepanov A.I.** Influence of steel production 08H14N7ML (VNL-1) on the degree of its equilibrium parameters of heat melt processing

The relationship of structure-sensitive properties of the melt with a VNL-1 performance properties of the castings. The obtained data allow to reach an equilibrium distribution of the components prior to crystallization, thereby reducing the number of looseness in the metal structure, improve the quality of castings. New modes of steel production have been tested for both open and vacuum melting.

**Key words:** vacuum remelting, structure-sensitive properties, equilibrium, tightness, polyterm heating and cooling, hysteresis polyterm, the instability of the structure.

1. **Nikitin K.V., Nikitin V.I., Timoshkin I.Y., Krivopalov D.S.** The perspectives of physical impact methods application during liquid-phase production of aluminum alloys, reinforced or modified by nanosized nonmetallic particles

The review of modern physical ways of processing of aluminum fusions in relation to technologies of receiving Aluminum matrix composites (AMCs) and Aluminium matrix composite master-alloys (AMCM-As) is executed. Prospects of application of physical ways of processing of fusions in technologies of reinforcing and modifying of aluminum alloys by nanodimensional nonmetallic particles are proved.

**Key words:** reinforcing, modifying, nanodimensional nonmetallic particles, liquid-phase methods, Aluminum matrix composites (AMCs), Aluminium matrix composite master-alloys (AMCM-As), physical ways of processing of aluminum melts, wetting, TiC, SiC.

1. **Kukartsev V.A.** Specialty of carbon-carbid-cilicic mixture using (UKKS) as substitute of recarburizing agent and ferrosilicon for grey iron

The variety of сarbon-carbid-cilicic mixture UKKS-31 using for grey iron melting in induction, crucible kiln, destined for grey iron melting are considered in this article. Traditional technologies costs and suggested technologies costs are compared.

**Key words:** iron melting, induction kiln, decarburizing agent.

1. **Feklin N.D.** The peculiarities of V-process application

The article provides the ways of efficiency increase of own equipment, making it universal, and method to reduce the cost of production of castings, produced using V-process.

**Key words:** V-process.

1. **Gruzman V.M., Musinov M.V., Tatarinova A.Y., Chernikova S.M.** Erosion-preventive molding paint.

Using non-stick paints based on costly refractory fillers are often impractical to apply for thin-walled steel castings. Burnt-on sand on the castings is confused with the effects of erosion. It is necessary to apply anti-erosion paint to its elimination. The article presents the results of tests of paint. Paint with finely dispersed filler was tested at the factory.

**Key words:** erosion, washing, Erosion-preventive paint.

1. **Orlov M.R., Golynets S.A.** Concerning the creepage kinetics of heat-resistant nickel alloys during tension and pressing

Variety of models, describing the creepage kinetics of heat-resistant nickel alloys during the monoaxial tension at various temperatures, unites their deflection from linear laws of vacancy, dislocation and grain boundary creepage. The analysis of creepage kinetics of heat-resistant alloy, based on the solving of Lame problem for thick-walled hollow sphere during hydrostatic pressing, has shown, that the linear dependence of creepage speed on the applied stresses remains under pressing stresses. The deflection of creepage speed under tension from the linear law happens due to changing of alloy density as a result of micropores formation, that was proved by the structural study using raster electron microscopy.

**Key words:** heat-resistant nickel alloys creepage speed, hardening γ΄-phase, vacancy model, «raft»- structure, hydrostatic pressing.

1. **Feklin N.** Effective methods of cooling of molding materials.

Various methods of sand cooling, used in full mold casting and in V-process technology are described. The efficiency of each cooling method is studied. New installation for cooling of sand by means pneumatic flow, which showed high efficiency at production, was developed.

**Key words:** ways of molding materials cooling, installation for cooling sand by means of pneumatic flow.

1. **Korobeynikov V.V.** Ecology and resource conservation - the fundamental principles of production modernization

The strategic target of industrial upgrading state support should be the machine-building complex as a whole, the locomotive of renovation of engineering industry should be machine-tool construction, the ridge of which is the foundry.

The global task appears even not of the revival of the foundry, but the creation of a fundamentally new for our country foundry production based on safety vital activity, resources conservation technological processes, domestic materials, domestic melting, form-making, heating and thermal equipment.

**Key words:** machine tools, foundry, engineering, ecology, resource, modernization.

**Info:** the 11-th Congress of the Russian exhibition "Foundry Casting-2013".