

Kutisheva L.M. OAO «LITMASHPRIBOR» – Russian supplier of foundry equipment
Description of moulding equipment and devices for foundry produced by OAO «Litmashpribor».
Key words: *mixer for chemical bonded sand, reclamation unit, moulding equipment.*

Koch F. The advantage of continuous power of induction melting furnaces produced by company EGES.

In the article are noted the advantages of continuous power in metal melting process in inductive melting furnaces.

Key words: *power, inductive melting installation.*

Alyohin V.I., Belogub A.V., Akimov O.V. Calculation of influence of the deployed castings defects of shrinkable character on durability of the cast detail of piston.

In this article the row of researches is offered devoted the problem of providing of reliable work and technical perfection of the cast details of pistons of petrol engines internal combustion, within the framework of introduction of methodology of calculation on tireless durability taking into account the deployed shrinkable defects.

Key words: *casted detail, piston, shrinkage defects, methodology modernization, fatigue strength, tension.*

Knustad O. The problems connected with high duty cast iron production. The existing methods of high duty cast iron production and inoculants review.

The purpose of present article is the analysis of different processes of high duty cast iron production widely use at present time and review of advantages and disadvantages of each process.

Technology of spheroidizing and graphitizing inoculants introduction inside the melt is very important stage of high duty cast iron production, therefore will be given the recommendations of optimal treatment implementation for each processes. In the article also reviewed the different types of inoculants use fore cast iron treatment. The special attention is paid to the research and examples from the experience of spheroidizing and graphitizing inoculants type FCM application which have rare-earth materials presented by different elements combinations.

Key words: *High duty cast iron, treatment methods, inoculants, rare-earth materials.*

Panov A.G., Shafigullin L.N., Kurin S.V. The modeling of dispersion-filled composite materials with complex of special properties.

In the article the possibility of modeling the specific properties of dispersion-filled composites. Experimental studies of physical and mechanical properties were carried out on thermo-filled composites, using modern test equipment. Found that the introduction of single-component and multi-modifying additives and fillers dispersed in the matrix composite leads to a significant change of the properties. Using percolation theory, structural phase transitions, we obtain equations that predict the studied mechanical properties. The method of multiobjective optimization of special properties obtained optimum compositions of composite materials used for production models of molds, fittings, lining plates and vibration-absorbent plates for lathes.

Key words: *dispersion-filled composites.*

Afonaskin A.V., Bistrov M.V., Merkushev A.G. The effective protection lining of cast iron crucibles for aluminum alloys, producing by casting under low regulating pressure method.

It is suggested the composition and technology of preparation and application of protection lining for the crucibles using for melting of aluminum alloys by low pressure casting.

Key words: *chamotte, magnesite, fluorsilicate or sodium fluoride, crucible, lining.*

Belov N.A., Belov V.D., Tyurin P.Y., Grot A.N., Tverdov V. The influence of melt ultrasonic treatment on fusible phases morphology in alloys of Cu-1%Bi, Cu-30%Pb и Al-20%Sn. The effect of ultrasonic treatment (UST) on the microstructure of model alloys Cu-1%Bi, Cu-30%Pb and Al-20%Sn was investigated. It was found a weak influence of UST on the morphology of low-melting eutectics in alloys Cu-1%Bi и Al-20%Sn, but it was observed the significant dispersing of led phase in alloy Cu-30%Pb. It was suggested that this difference may be connected with the fraction of liquid containing low-melting metal.

Key words: *copper and aluminium alloys, ultrasonic treatment, microstructure, solidification, low-melting metals.*

Dobrinina A.V. The criterions of elements selection for micro-alloying of low-carbon and low-alloy steels with purpose to reduce the cold brittleness.

The necessary condition of effective improvement of physical-mechanical properties of casted construction steel by micro-alloying and inoculation method is the additives positive influence on thermodynamic and kinetic parameters of phase transformations, development of chemical and physical alloy structural irregularity, solid-mortared and dispersed (grain boundary) strengthening. For selection of the parameters, determining the inclination of small additives inside alloys on the base of iron to enrichment of grain boundary by these additives it is proposed to use the criterions of grain boundary and surface activity. On the base of diagram, constructed on the base of calculation results the elements for micro-alloying are determined which are assist to grain-boundary strengthening.

Key words: *brittle fracture, grain-boundary strengthening, surface activity, grain boundary activity, segregation energy.*

Sandulyak A.V., Sandulyak A.A., Samokhin V.V., Polismakova M.N., Svistunov D.I., Ershov D.V., Ershova V.A., Kontopshikova A.V., Sandulyak D.A.

Magnetic «scanning» control of ferro-inclusions content in molding sands.

With use «enriched by ferroparticles» forming mixture (tests of different weights) the investigations of a laboratory method of polyoperational «scanning» magnetophoresis applied in another manufactures are carried out. Adaptation of this method to foundry manufacture is carried out, it is offered to use small tests of a forming material for this purpose, carrying out such number of operations, those are sufficient for objective extrapolation (and the subsequent integration) of received relation of operation-by-operation mass of ferroimpurities.

Key words: *concentration of ferroimpurities, forming materials, magnetic separator, polycyclic separation, magnetophoresis.*

Deev V., Selyanin I., Tsetsorina S., Degtyar V., Slobodchikov A. Research of the crystallization process of the casting alloys which are obtained with using secondorder basic materials.

Computation of crystallization parameters of the casting alloy AK7ч which is obtained with using various composition charge and trimmed with different physical modifying influences is carried out in the article. The visual programming language Delphi was used for the computation.

Key words: *liquid, physical modifying influences, casting alloy AK7ч, crystallization, critical radius of the germ, overcooling, visual programming.*