

Congratulations with Happy New Year

Recommendations of XII foundryman congress

**1. V.V. Markov, O.S. Koshelev, S.V. Plokhov. Solid and liquid solutions in metal systems.**

This paper addresses the mechanism of formation of adsorption type surface solutions in metal systems and its principle difference from the mechanisms of formation of absorption-type substitutional solutions and introduction solutions. Information suggested in this paper corrects and develops the alloying theory, as well as contributes to a better understanding of the processes occurring in solid and liquid metal systems during their phase transformations.

**Key words:** metal system, substitutional solution, introduction solution, surface solution, alloying, solid solution, liquid solution.

**2. I.E. Illarionov. Scientific basis of design rod and molding mixtures based on inorganic phosphate bonds and powdered hardener.**

The paper presents the theoretical and technological basis for the development of environmentally friendly molding and core mixtures using a metal phosphate binder and powder curing agents for castings from ferrous and non-ferrous metals and alloys of the highest quality. These technologies produce castings that are environmentally friendly, and they have a long shelf life, low cost, provide the required physical-mechanical and technological properties.

**Key words:** metal phosphate binder and a mixture of strength, heat resistance, vybivaemost, environmental friendliness, flexibility, quality castings.

**3. I.A. Petrov, A.P. Ryakhovsky, V.S. Moiseev, B.L. Bobryshev, A.D. Shlyaptseva. Perspectives for use of carbon-containing materials for treatment of silumins.**

The article examines the processing of various silumin complex modifying fluxing agent developed by authors, containing surfactants and substances forming additional crystallization centers that can effectively influence the structure of the aluminum casting alloys and improve their mechanical properties.

**Key words:** silumin, comprehensive modification, fluxing agent, microstructure, mechanical properties, carbides.

**4. V.A. Mamin. Development typical modular of the foundry equipment with vertical axis of rotation.**

Are presented constructive schemes of foundry machines and units of automatic transfer lines. The most widespread are the units carrying out rectilinear movement. The drive in such designs is carried out from pneumatic or hydrocylinders. The following are applicable machines which working bodies carry out circular movements. A drive in such units, basically, electromechanical. Most machines with a horizontal axis of rotation. Are presented various schemes such machines of rotation. Designs of machines and units with a vertical axis of rotation are presented.

**Key words:** drive electromechanical, mechanisms of rotation, column.

**5. A.I. Kovtunov, D.A. Semistenov, I.V. Novskiy, D.I. Plakhotnyi, A.G. Bochkarev. Methodology and facilities for erosion test of fixed coating on metal casting forms.**

A construction of automatic pilot plant has been suggested for erosion test of fixed coating on metal casting forms for aluminum foundry. Test of surfaced iron — aluminum coating confirmed that application of automatic plant is effective.

**Key words:** erosion resistance, chill cover, intermetallide compounds, metal die, aluminum casting.

**6. Kuznetsov, G. Hazan. Ensuring the similarity of the results of laboratory and production experiments.**

Examples ensure maximum compliance with the results of an experiment in the laboratory and in the production, which used computer modeling and statistical procedure Bootstrap.

**Key words:** Mathematical models, compliance of experiments, active experiments.

**7. M.A. Kalaushin. Efficiency of use of complex deoxidizer KR-1 for steel production.**

Lists results of influence of KR-1 deoxidizer on content of sulfur and nonmetallic inclusions in steel.

**Key words:** deoxidizing, nonmetallic inclusions, rare-earth metals

Reviewers of «Russian Foundryman» magazine

Congratulations to Klimenko S.I.