

1. Dibrov A. New concepts of IMF for foundry workshops (continuation).

During 29-30 October 2014 IMF company with the support of Russian Association of Foundrymen has held the seminar in Moscow. The seminar was visited by more than 100 persons from more than 40 organizations. This fact underlines the interest of foundrymen in No-bake technology in general, and in the latest developments of IMF company in particular. The first part of the article, published in the 12th issue of the magazine in 2014, was devoted to developments of IMF group in the field of automation of large-sized castings production, molding lines based on vertical storages, and shake-out of molds and reclamation of mixtures. This issue represents the developments of IMF group and its partners in other fields.

2. Verbitsky V.I. Analysis of rheological models molding sand.

Given rheological equation and comparison of the behavior of various models under load volume and surface forces, assess the suitability of the models for the solution of cognitive and practical problems. The advantage of complex models with diversity in successive blocks of viscous properties of plasticity, visco elastic and «clean» elasticity.

Keywords: rheological model, elasticity, viscosity, plasticity.

3. Aleksandrov M. Structure Formation And Abrasive Wear- Resistance Of Tic-Reinforced Alloyed White Cast Iron-Based Composite Material.

Process of the in situ synthesis of titanium carbide was examined directly in the liquid melt of white cast iron. Effect of chromium and silicon content on the structure and properties of the composite was studied. Improving the wear resistance of white cast irons is achieved through the formation highly rigid particles of titanium carbide. Metallographic studies were performed. The microstructure of the composite was characterized by X-Ray diffraction and scanning electron microscopy. (Fe- Cr-C)+TiC system cast composite material with clearly heterogeneous structure is developed to be exploited in conditions of intensive abrasive and erosive wear. Alloying and structure formation features are studied.

Keywords: white cast iron, titanium carbide, wear resistance, alloying, eutectic.

4. Ten E., Levin M., Rogkova E., Konushova A. Heat resistance increase of chromium cast iron Cr8.

By experimentally was studied the influence of chromium cast iron Cr8 treatment by Fe-45Si-6Mg-0,5P3M modifier on the structure, phase transformation and heat resistance. It is demonstrated that during modifying of chromium cast iron Cr8 exists the alloying effect. The initial cast iron structure, which consists from alloyed ferrite, carbide $(Cr,Fe)_7C_3$ and cementite $(Fe,Cr)_3C$ during the increase of modifier expense are transformed as during the alloying by chromium. At the modifier expense of 0,15 % the mass quota of cementite $(Fe,Cr)_3C$ is decreased from 3,2 % till to zero, and the mass quota of carbide $(Cr,Fe)_7C_3$ is increased from 20 up to 30 %.

Such transformation of cast iron phase structure causes the forming on the its surface the oxide film, in which the mass quota of chromium containing oxide $FeCr_2O_4$ increases to 2.2 time, due to the heat resistance of cast iron Cr8 raise to 5.4 time. In this case the heat resistance of cast iron Cr8 increases from 700 up to 900 oC and becomes comparable with the heat resistance of high chromium cast iron Cr16.

Key words: chromium cast irons, structure, phases, alloyed ferrite, chromium carbide, cementite, modifying, alloying effect, heat resistance.

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