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«FOUNDRY MEN of R U S S I A» № 8/2018

### 1. Nikitin K.V., Nikitin V.I., Timoshkin I.Yu. Influence of dispersion of the charge titanium on the structure parameters of the master-alloys AlTi

The article presents the results of the study of the effect of the dispersion of charge titanium on the structure of aluminum-titanium ligatures. It is shown that to obtain the microcrystalline structure of Al-Ti inoculants it is advisable to use the dispersed fractions of charge titanium, to make liquid-phase treatment of melts, and crystallization is carried out high cooling rates.

**Key words:** Ligature, inoculation, microstructure.

### 2. Kulikov V.Y., Kvon Sv.S., Kovaleva T.V., Eremin E.N. Researches of influence of pressure regimes on parameters of the porous structure of the form.

Influence of the technological modes of pressing on gas permeability and porosity of sand — resin forms is considered. It is defined that it is more time of radius, than 1000 microns, reduce cover durability, worsen quality of a surface of casting, violate conditions of uniform heat exchange. It is defined that technologically necessary value of gas permeability is provided if initially to use pressure upon mix which is 0,27...0,36 MPa which then should be regulated on the above described technology. If to continue to increase pressure (it is higher than 0,4 MPa), the gas permeability of a shell form falls less than 90 pieces.

**Key words:** The cover, pitch, form, porosity, gas permeability, pressure, quality.

### 3. Barinov A. Yu., D'yachkov V.N., Nikitin K.V., Tukabajov B.N., Borodin B.N. The usage of additive technologies to produce cast products for technical purposes.

The results on the use of additive technologies for the production of casting models for investment casting and in the form of cold-hardening mixtures are presented.

**Key words:** additive technologies, investment casting, casting in cold-hardening mixtures.

### 4. Nikitin V.I. The formation of the foundry department of SamGTU — 40 years way.

A brief history of the creation and prospects of the Foundry Department KPTI-SamGTU and its contribution to the training of foundry specialists and the development of scientific directions in the foundry field of the Samara region and Russia.

**Key word:** Foundry Department of SamGTU, training of foundry specialists, innovative technologies, Samara branch of RAL.

### 5. Makarov G.S. Evolution of Aluminium Alloys Melting

Evolution of melting techniques for aluminum alloys in the last 100 years is described, as is the competition between flame and electric melting in achieving better performance in furnace productivity, melt loss, energy saving and metal quality. To analyze the logic of development, the concept of Hegel's evolutionary spiral is used. It is shown that the completion of the third coil of the spiral in the 21st century will be the melting of aluminum alloys. It will combine high

specific power of plasma with a variety of modern flame furnaces, providing energy saving, ecological compatibility of the melting process, minimal metal losses and the highest level of metal quality.

**Key words:** flame melting, electric melting, flame hearth, reverberatory electric furnace, flame hearth furnace, channel induction furnace, coreless induction furnace, electromagnetic stirring, electromagnetic pump, shaft furnace, multi-chamber furnace, rotary tiltable furnace, direct-current arc furnace, plasma furnace.

**Yury Nikolaevich Samsonov**  
**To the 70th anniversary of his birth**

