

## Kosnikov Gennady Alexandrovich (to the 85th anniversary of his birth)



May 24, 2022 marks the 85th anniversary of Professor, Doctor of Technical Sciences, Honored Worker of the Higher School of the Russian Federation, Professor of the Higher School of Physics and Technology IMMIT of Peter the Great St. Petersburg Polytechnic University Gennady Alexandrovich Kosnikov.

The Russian Association of Foundry Workers, the Editorial and Publishing Council of the magazine "Foundry Worker of Russia", colleagues, friends, students cordially congratulate Gennady Alexandrovich on his anniversary and wish him health, creative activity, and happiness for many years to come.

Invitation to the congress

1. **I.O. Leushin, A.Y. Subbotin, M.A. Geyko.** Preparation of zinc coated steel scrap for induction remelting

Annotation. A method and installation have been developed for preparing galvanized steel trimmings for induction remelting by removing zinc coating. Research of using a formed at the same time by-product — liquid waste — in foundry technologies has been carried out. Planning solutions have been developed for a specialized area for preparing galvanized steel trimmings for induction remelting in the foundry of the existing production and within the framework of a separate production, differing in productivity.

**Keywords:** zinc coated steel scrap, zinc drawing, chemical refining, induction melting, foundry.

2. **V.I. Verbitsky.** Indicator diagrams for shaking and pressing cylinders

Annotation. Specific examples show how different the appearance and low accuracy of the indicator diagrams of the shaking cylinders FM. Diagrams are especially useless for counter-impact shakers. The advantage of modern methods of designing shakers, vibrating tables and presses based on the use of dynamic mathematical models is shown.

**Keywords:** shaker, press, indicator diagram, impact energy.

3. **L.M. Bistina, V.A. Korovin, P.A. Sluzov, V.K. Sedunov.** Stack casting mold

Casting in vertical stack molds allows to provide an exceptional rationality of the mold design, in which the castings are located on one riser in several levels. Thanks to this labor, material, energy and monetary resources are saved. Compared to casting in paired molds, a significant increase in labor productivity is achieved, since to obtain the same number of castings 1.7—1.9 times fewer molds are required, respectively, the consumption of the molding mixture is reduced, the yield increases due to the compactness of the gating system, metal is saved and fuel and energy costs for its smelting are reduced.

**Keywords:** horizontal stack mold, horizontal stack mold, moldable sand, casting, Cold-Box-Amin-process, gating system, gas permeability, core element of mold.

4. **T.R. Gilmanshina, I.E. Illarionov, S.A. Khudonogov, A.A. Kovaleva, E.V. Budnik.** Investigation of the possibility of using graphite — containing slags in the compositions of non-stick coatings

Annotation. The results of studies of reducing the thickness of the burn on the surface of cast iron castings (depending on the wall thickness on the side surface of the castings by 1.5—3.0 times; on the lower surface — 1.5—1.7 times) when replacing natural graphite with graphite-containing sludge are presented.

**Keywords:** graphite, self-drying non-stick coating, cast iron, graphite-containing sludge, prigar.

5. **D.A. Volkov, A.D. Volkov, A.V. Efimenko.** Gating systems in the technology of casting grinding balls

Annotation. A number of experimental and research works on the development of parameters of the technology of casting grinding balls by casting into a lined coquille with a vertical connector are presented. The influence of a multi-level gating system on the efficiency of filling the mold cavity with the melt of lined coquilles, on the quality of crystallization of large grinding balls, as well as on increasing the yield of suitable casting was revealed. The influence of the thickness of the facing layer on the crystallization of large grinding balls is investigated. The effect of modifiers containing barium, magnesium and cerium on the physical and mechanical characteristics of grinding balls and separately cast samples is investigated. A technology has been developed to eliminate shrinkage shells in cast grinding balls by enhancing directional crystallization by partially replacing the lining layer with a heat-resistant water coating. The equipment for mass production of high-quality large grinding balls developed by JSC «BELNIIILIT» and competitive to world analogues is proposed.

**Keywords:** Cast grinding balls, casting in lined coquille, gating systems, yield of suitable, directional crystallization.

6. **K.A. Batyshev, K.G. Semenov, E.D. Demyanov, V.A. Khovanskaya.** Features of obtaining zinc alloys for castings from secondary raw materials.

Abstract. At present, industrial enterprises for the recycling and processing of secondary waste accumulate a large amount of low-grade raw materials from nonferrous alloys. One such group of materials is zinc alloys. Their processing is associated with certain features that are presented in this paper.

**Keywords:** scrap, waste, classification, pollution, sorting, melting, refining, combined flux, yield, ecology.

7. **Dr. A. Popov.** Laempe core-making equipment at the factories of largest foundry nations during the 2020—2021 crisis.

Abstract. The article provides an analysis of the state of the world foundry production, the leading countries are distinguished in terms of production volumes. The level of equipping foundries with modern samples of foundry core equipment is described.

**Keywords:** Foundry Modernization, Core Technology, Coldbox-Amin Process.

**Press-release**

**«SpetsTek» helped implement RCM at the Chelyabinsk Metallurgical Plant**

Specialists of NPP SpetsTek provided consulting services for the implementation of a reliability-oriented approach to the maintenance of equipment in PJSC «Chelyabinsk Iron and Steel Works»