E.V. Panfi lov, T.A. Gazizov, V.I. Martemyanov, O.U. Dyagilev, A.G. Kashmenskii, D.V. Sidelnikov. Design and technology of assembly of a package of rods castings cylinder block type «LEGO»

Abstract. The work shows the stages of development from the prototype to the serial batch of a particularly responsible casting of the P6 cylinder block for KAMAZ vehicles of the new K5 model range. The necessity of using a metal «jacket» in the serial technology of manufacturing packages of rods and the application of the principle of assembling «LEGO» rods is determined.

Keywords: cylinder block; cast iron casting.

K.V. Nikitin, A.Yu. Barinov, V.N. Konstantinov, V.N. Dyachkov, V.I. Nikitin. Production of aluminum body castings according to polymer models obtained by FDM technology

Annotation. Using the example of the casting «Branch pipe» made of AK9ch alloy, it is shown that the use of additive technologies at the stage of manufacturing model kits makes it possible to increase the efficiency of aluminum casting production in the conditions of experimental small-scale production.

Keywords: additive technologies, silumins, casting into refractory ceramic molds.

A.A. Shatulsky, V.A. Izotov, Yu.A. Dolinin. Design of gate-feeding systems for castings made of nickel heat-resistant alloys based on modeling the process of fi lling the mold cavity with melt

Annotation. The classification of gate-feeding systems used for the manufacture of castings of the «Blade» type is proposed. Based on the statistical analysis of production processes, experimental data, the relationship between the shape of the casting, the type of LPS and possible types of marriage was revealed. A method has been developed for calculating the process of filling the mold cavity with melt, and the executable dimensions of the gate-feeding system, which ensures the production of castings with a minimum number of defects.

Keywords: castings of the type «Blade gate-feeding system, filling, modeling, defects of castings.

A.A. Kreschik, V.A. Kechin, D.V. Sukhorukov. Polyurethane thermal insulation materials from waste products of model-rod tooling

Annotation. Research on the processing of the share of irrevocable polyurethane waste from the production of model equipment into thermal insulation material.

Keywords: model equipment, polyurethane waste, pressing, thermal insulation material.

A.M. Lazarenkov, M.A. Sadokha. Investigation of the air environment of the working areas of foundries with modern technologies for the manufacture of cores and molds

Annotation. Modern technologies for manufacturing cores and molds using cold-hardening mixtures are considered. The results of studies of the content of harmful substances in the air of the working area during the manufacture of cores and molds by various processes (NO-WAX, Alpha-set, Beta-set, COLDBOX-AMINE, EPOXY-SO2 — process, RESOL-CO2) and pouring molds and cores with liquid metal are presented. It is noted that a complex of harmful substances is fixed in the air, the composition of which depends on the processes used to obtain cores and molds, binding materials, metal poured into molds, and the nature of production. It is established that in order to ensure safe working conditions for workers in the organization of production, it is necessary to take into account the sanitary and hygienic characteristics of the substances used and the conditions of a particular production.

Keywords: harmful substances, binders, working area air, harmful substance content, safety measures

A.A. Garchenko, V.A. Korovin, K.A. Maslov. Increasing the service life of molds for casting high-alloy alloys

Annotation. The paper presents the results of a study of the microstructure and mechanical properties of 20L steel molds intended for casting ingots from heat-resistant alloys smelted in a vacuum induction furnace (VIP) under the conditions of PJSC Ruspolimet.

Keywords: mill, heat-resistant alloy, ingots.

A. Popov. Implementation of technologies «Industry 4.0» in the global foundry industry on experience of Laempe

Annotation. The article provides a description of modern information and computer technologies used in foundry production and in particular for core-making. The various capabilities of the Industry 4.0 tools for solving the problems of collecting and processing data, monitoring the condition of equipment and complex automation of core-making process are described.

Keywords: modernization of production, core-making equipment, automation of processes, computer technologies, prototyping of cores.

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Obituary

Nikitin Vladimir Ivanovich
(23.02.1942—01.09.2022)