

1. **E.I. Marukovich, V.Yu. Stetsenko, A.V. Stetsenko.** Influence of gases on casting expansion processes during their hardening

Abstract. It has been experimentally shown that directional solidification of water and bismuth in glass and quartz cylindrical forms does not result in expansion of the castings perpendicular to the solidification direction. Therefore, such forms are not destroyed. This is due to the unobstructed release of gases during directional solidification of water and bismuth. Gases have a great influence on the expansion processes of castings when they solidify.

Keywords: expansion of castings, gases, water, bismuth, directional hardening, melt, nanocrystals.

2. **Yu.I. Gut'ko, V.S. Miroshnichenko, A.N. Golofaev, E.M. Pampura.** Digital technologies in foundry production

Abstract. The article analyzes the defects that occur during the manufacture of the casting «Housing 7555A» and provides recommendations for their elimination. Research has been carried out and an experimental model has been created using CAD, CAE and CAM systems.

Keywords: CAD, CAE, CAM, defects, shrinkage, modeling, gate feeding system.

3. **A.A. Berstnev.** Surface defects during casting by smelted models

Abstract. The reasons for the appearance of surface defects on castings made by investment casting are considered. Preconditions of the reasons leading to their appearance of surface defects of castings by investment casting process are considered in relation to each operation of investment casting process.

Keywords: surface defects, investment casting, wax pattern, ceramic shell mold.

4. **B.V. Ovsyannikov, V.N. Timofeev, G.P. Usynina, N.V. Naidina.** The influence of the electromagnetic field during the crystallization of small diameter ingots on the structure, technological plasticity and properties of pressed products made of aluminum deformable alloys

Annotation. Casting of ingots 70 mm from aluminum alloys of grades 5083, D16ch and B95ch into an electromagnetic crystallizer (EMC) of a new design was carried out. A study of ingots and pressed rods made of them was carried out. It is shown that ingots have high plasticity and do not require homogenization before pressure treatment. Pressed bars made from the ingots obtained have higher properties compared to bars made from ingots cast in a graphite crystallizer with a hot top.

Keywords: aluminum alloys, electromagnetic crystallizer, semi-continuous casting, pressing, structure, mechanical properties.

5. **F.I. Panteleenko, R.Yu. Popov, V.T. Shmuradko, A.S. Samsonova.** About the problems and results of obtaining products from technical ceramics for metallurgical production. Message 1

Annotation. The article presents the research's results in the field of multifunctional ceramic materials synthesis for metallurgical, machine-tool and other branches related to the metal treatment, their alloys and products from them; current trends and tendencies associated with the production of goods from such materials. The information on expanding the local raw material sources for the production of ceramics with the involvement of local enterprises is provided. In addition, the prospects for the industrial potential development to produce such goods are observed.

Keywords: metallurgy, metalworking, ceramic materials and products, raw materials, synthesis, physical and technical characteristics, production.

6. **A.I. Sultanov.** Status, problems and development prospects of JSC «Uzmetkombinat»

Annotation. JSC «Uzmetkombinat» is one of the largest metallurgical enterprises of the Republic of Uzbekistan. Along with the main products — long products from ferrous and nonferrous metals of various assortments, steel grinding balls, ferroalloys, the plant also produces heatinsulating materials, consumer goods and other products. JSC «Uzmetkombinat» is a developing enterprise — year after year it increases its production capacity, opens new production facilities and increases the range of products. This article provides information about the plant, the range of products, production indicators for previous years and targets until 2026, as well as ways to achieve them.

Keywords: JSC «Uzmetkombinat», rolled products from ferrous and non-ferrous metals, steel grinding balls, ferroalloys, production volume, casting and rolling complex.