

## **PRODUCTION OF MODEL EQUIPMENT IN THE MODERN FOUNDRY**

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The main procurement base for mechanical engineering is foundry production. The technology of manufacturing castings using sand mixtures is currently dominant in foundry production.

The efficiency, cost-effectiveness of casting production and their quality largely depend on the properties and composition of molding mixtures. The properties of mixtures that meet the basic requirements of the technological process of manufacturing rods and molds are the main criterion for choosing mixtures of a certain composition.

The process of making molds and cores on a liquid glass binder is one of the progressive methods. Technologies for the production of molds and cores are used in many enterprises. Liquid glass is an inexpensive, accessible and non-toxic binder. Using liquid glass to make core and molding mixtures makes it possible to reduce the metal consumption of castings due to the production of thinner-walled products, to obtain stronger forms and to improve the quality of castings.

However, the main disadvantage of liquid glass technologies is poor knockout of castings from molds and cores from castings. The most difficult operation in terms of sanitary and hygienic aspects in the entire cycle of foundry production is the knockout process. It is accompanied by a high noise level and large heat, gas and dust emissions. Therefore, the implementation of the advantages of liquid glass mixtures is impossible without a significant improvement in their knockout.

Ways to improve knockout are the use of various LG modifiers and the introduction of strengthening additives into the mixture. The process of strengthening mixtures using these additives is carried out using thermal drying or blowing with CO<sub>2</sub>, which requires additional equipment. The disadvantages of inorganic strengthening additives are that they reduce the initial strength of the mixtures and can accumulate in the mixture, thereby changing the quantitative ratio of its components.

The process of hardening mixtures on a liquid glass binder using ether hardeners is increasingly used in foundry production. When using ether hardeners, the quality of mixtures improves, the consumption of liquid glass decreases, the number of casting defects decreases, and the residual strength of cores and molds decreases. The use of cyclocarbonates as complex additives that regulate the strength properties of mixtures is one of the ways to improve the properties of cores and molds.

An urgent task of the foundry industry is the development and implementation of new complex additives for cold-hardening mixtures on vein glass, which allow increasing the strength of rods and molds at the stage of their preparation, while maintaining such properties of mixtures as friability, durability and also contribute to strengthening after pouring with metal and their cooling.