

RESEARCH OF THE EFFECT OF DIFFERENT HARDWARE ON PROPERTIES OF COLD-HARDENING MIXTURES

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Currently, the technology for casting using cold-hardening mixtures (CHM) based on liquid glass is used at many enterprises in Ukraine. This is explained by the fact that mixtures on liquid glass quickly harden, and the production of CHM based on them leads to improved working conditions in existing foundries, they do not worsen the environmental situation, and also allows improving the quality of castings by reducing surface defects.

Improving the quality of castings, cost-effectiveness and efficiency of their production largely depends on the composition and properties of the molding mixtures at different stages of their preparation and use.

The molding mixture is a multicomponent heterogeneous system, which, in addition to the filler and binder, contains various technological additives that give the mixtures specific properties, for example, increased flowability, knock-on, non-stickiness, etc.

The main criterion for the selection of mixtures are their properties, which correspond to the chosen technological process of preparing molds and cores.

One of the progressive methods is the process of manufacturing rods and molds on liquid glass (LG), and the technology for their preparation is used in many enterprises. This is due to the fact that liquid glass is an affordable, inexpensive and non-toxic binder. Using as a binder LG for the manufacture of molding and core mixtures allows you to get more durable forms, reduce the metal intensity of castings due to more thin-walled products and improve the quality of castings.

In the 70s of the last century, a promising method of curing cold-hardening mixtures based on liquid glass (LG) using liquid esters was developed.

The use of nontoxic liquid hardeners for CHM allowed it to more fully utilize the properties of liquid glass, reduce its consumption to 2,5 ... 4% and thereby dramatically improve the knockability of forms and rods. The consumption of liquid hardener is very small at the same time - 10 ... 12% of the mass of liquid glass.

In the production for these purposes most often used two ethers - triacetin and propylene carbonate. However, the production of castings is currently hampered by the lack of technical esters in Ukraine.

Therefore, the development of new liquid hardeners for CHM, which would improve the embossability of the molds and cores, made it possible to abandon the CO₂-process and thereby simplify the process is an important task for the foundry industry.