

1. **Dibrov I.A. Russian association of foundrymen and magazine "Foundry production" in 2015**
2. **Ivkin M., Brusnitsyn S., Mysik R., Sulitsin A. Investigation of microstructure and mechanical properties of wearproof complex alloyed brass.**

The article considers the reasons for the formation of defects synchronizer rings made of high alloyed brass. The microstructure of the CuZn30Al2Mn3SiNiCr alloy was investigated. The influence of the presence of chrome on the size and number of intermetallic in the high alloyed brass was established. The influence of the presence of chromium on hardness was determined.

Key words: high alloyed brass, synchronizer ring, semicontinuous casting, microstructure, intermetallic.

3. **Makarenko K., Kuzovov S. Using the Niyama criterion to predict locations cracks in castings.**

The reasons for the formation of hot tearing in castings and their interaction with other defects. The possibility of sharing criteria Niyama and destruction in computer simulations for probabilistic assessment of places of hot tearing in the castings. The technique, which allows the design phase gating system to reduce the marriage of castings for hot tearing.

Key words: Steel, casting, defect, hot tear, simulation, Niyama criterion, solidification, dendrites.

4. **Kolesnikov M., Mukhametzyanova G., Mukhametzyanov I. Analog investigation of thermo-mechanical fatigue surface - hardened steels used for making the press-forms of pressure casting of aluminum alloys.**

The origin and development of cracks thermomechanical fatigue (TFC) in die steels 3H2V8F, 4H4VMFS 4H3VMF after nitriding, cyanidation, Boriding, EDM surface alloying and surface claddings for various loading conditions of the samples in experimentation, the parameters corresponding to the cyclic temperature-force loading press-forms of casting aluminum alloy were investigated by analog patterns.

Key words: cracked thermomechanical fatigue, chemical termichekaya treatment, nitriding, carbonitriding, boriding, welding electrodes, EDM doping.

5. **Koltygin A., Nikitina A., Belova E. The study of the properties of the magnesium cast alloy system Mg-Al- Ca-Mn.**

Application of calcium as alloying element for magnesium alloys has been considered according to literature data. Mg-7% Al-4% Ca-0.5% Mn casting alloy was offered, which possesses the low propensity to the hot brittleness and good castability. It is shown, that calcium-containing alloys smelting of Mg-Al- Ca-Mn system is preferable with the application of low-chloride flux FL10 (20% MgCl₂; 29% KCl; 12% BaCl₂; 23% CaF₂; 15% MgF₂; 1% B₂O₃). The alloy smelting in the atmosphere of argon and SF₆ mixture results in the increased shelling and waste of calcium. The heat treatment is offered for the developed alloy, which is directed to the Al₂Ca phase spheroidizing. The developed magnesium alloy, alloyed with calcium, is perspective for the industry production of low-cost moulding.

Key words: Magnesium; Casting; Calcium; Casting magnesium alloys.

6. **Shalevskaya I.A. The article offered the option of reducing the formation of harmful emissions in the foundry industry by casting technologies on gasified models.**

The technological scheme of the process and system of environmental protection.

Key words: environment protection, casting, polluting air emission, progressive technology, casting on gasified models.

7. **Vdovin K., Sinitcin E., Volkov S., Kotok S., Molochkov P. The choice of the chemical composition of pig iron for the production of groundwater pumps.**

The article considers the possibility of obtaining a new composition of white abrazivnostoykiye cast iron for the production of groundwater pumps. It shows the influence of chemical composition and cooling rate on mechanical properties and structure of cast iron. Defined the power of influence of alloying elements on properties.

Key words: cast iron, structure, carbon, water pump, carbides.