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FACULTY OF TECHNOLOGY

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THE INFLUENCE OF MECHANICAL ACTIVATION OF CERAMIC FILLERS ON THE QUALITY OF THE REFRACTORY COATS

Zagorka Aćimović[1], Ljubiša Andrić[2], Anja Terzić[3], Milan Petrov[2], Marko Pavlović[1]

[1]Faculty of Technology and Metallurgy, University of Belgrade, Karnegy st. 4, Belgrade, Serbia, E-mail: zagorka@tmf.bg.ac.rs
[2] Institute for Technology of Nuclear and Other Raw Mineral Materials, Franchet d'Esperay st.86, Belgrade, Serbia, lj.andric@itnms.ac.rs
[3] Institute for Materials Testing, Vojvode Mišića Boulevard 43, Belgrade, Serbia

In this paper, results of the investigation of the influence of mechanical activation of ceramic fillers (talc, cordierite, alumina and mica) on the quality of refractory coats for casting application are presented. It is shown that additional fine grinding of the ceramic fillers influences increasing of the quality of refractory coats. Grinding and activation of the particles with various granulations contributes to the creation of the homogenous and continuous layer of refractory coat on the sand moulds and cores, as well as on the evaporating patterns for application in the EPC casting process. Refractory coats obtained by means of the activation of particles procedure have better adherence to mould, cores and evaporating patterns.

Keywords: refractory coat, activation of fillers, talc, cordierite, alumina, mica.

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SYNTHESIS AND CHARACTERIZATION OF REFRACTORY COATS BASED MICA FOR APPLICATION IN NEW CASTING PROCESS

Jelena Milić[1], Ljubiša Andrić[2], Anja Terzić[3], Marko Pavlović[1], Zagorka Aćimović[1]

[1]Faculty of Technology and Metallurgy, University of Belgrade, Karnegy st. 4, Belgrade, Serbia, E-mail: zagorka@tmf.bg.ac.rs
[2] Institute for Technology of Nuclear and Other Raw Mineral Materials, Franchet d'Esperay st.86, Belgrade, Serbia,lj.andric@itnms.ac.rs
[3] Institute for Materials Testing, Vojvode Mišića Boulevard 43, Belgrade, Serbia

This paper presents the results of research on refractory coats base mica for application in Lost foam casting process. The coats' synthesis with controlled rheological properties was done using varied compositions and methods of coats' preparation and production. The x-ray structural analysis was used for determining and tracking the refractory filler phase composition. Qualitative mineralogical samples analysis was done under the polarized microscope for reflective and leakage light. Particles shape and size analysis was done using software program package OZARIA 2,5. For effects evaluation of particular refractory coats, a detailed examination of obtained castings structural and mechanical properties was done, with special emphasis on detecting and analyzing the present surface and volumetric errors on castings. The obtained results can be useful for the synthesis of refractory coats with different fillers and for reaching the castings of a priori defined properties.

Keywords: Lost foam casting process, refractory coats, mica , quality of castings.

CONDITIONS QUALITY POLYMER MODELS AND TOOLS FOR APPLICATION IN LIST FOAM CASTING PROCESS

Živorad Belić[1], Ljubiša Andrić[2], Anja Terzić[3], Marko Pavlović[4]

[1]Fiat Automobiles, Kragujevac, Serbia (FAS),
[2] Institut za tehnologiju nuklearnih i drugih mineralnih sirovina, Ul. Franše d'Epere 86, 11000 Beograd, Srbijalj.andric@itnms.ac.rs
[3] Institut za ispitivanje materijala, Bulevar Vojvode Mišića 43, 11000 Beograd, Srbija
[4]Tehnološko-metalurški fakultet, Univerzitet u Beogradu, Karnegijeva. 4, 11000 Beograd, Srbija

In this paper, the basic principles of tools construction for expanded polistyrene model production as well as the possibilities of their application for casting large series of complex casting by Lost foam process, are given. Tools for models production are specific and require special studying. Polymer for the production of the model needs to have required characteristics and especially the lower density. The price of tools production is high, but their duty cycle is long, and the casting quality and productivity of casting by this method are high.

Key words: Lost foam process, tools, polymer models, quality of castings