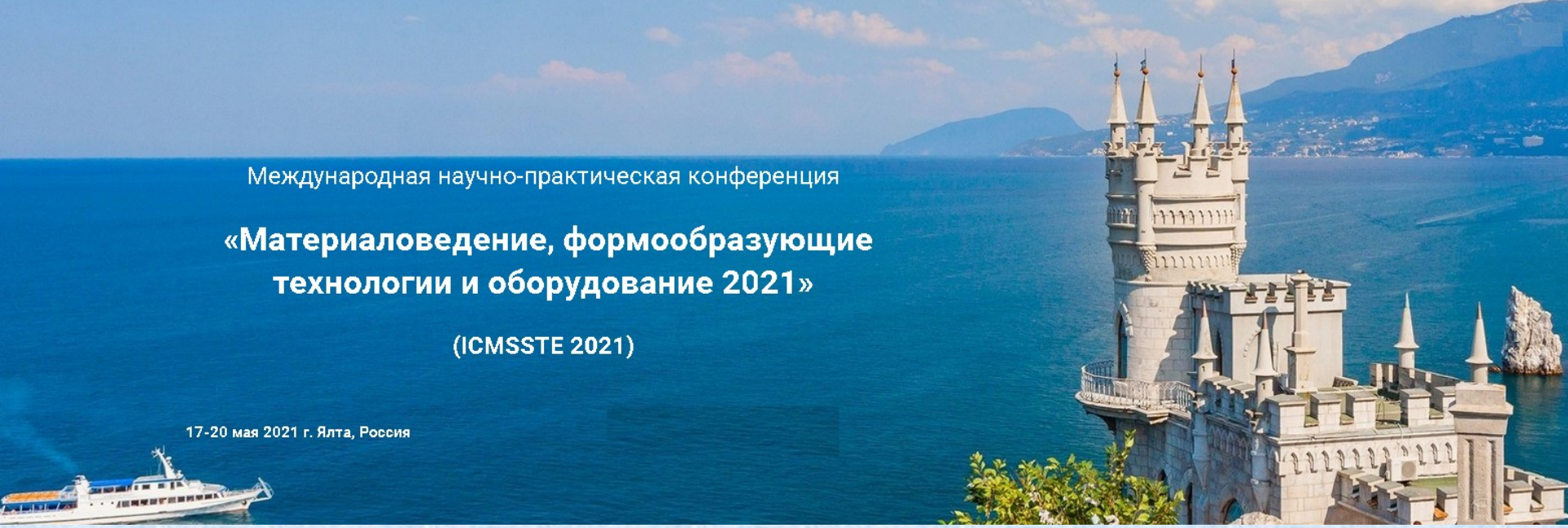

Magnesia compositions with technogenic fillers

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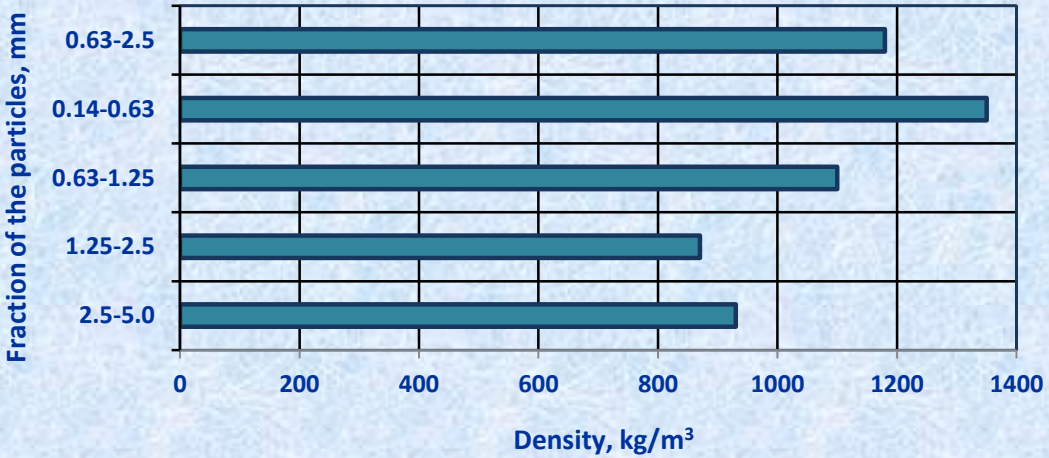
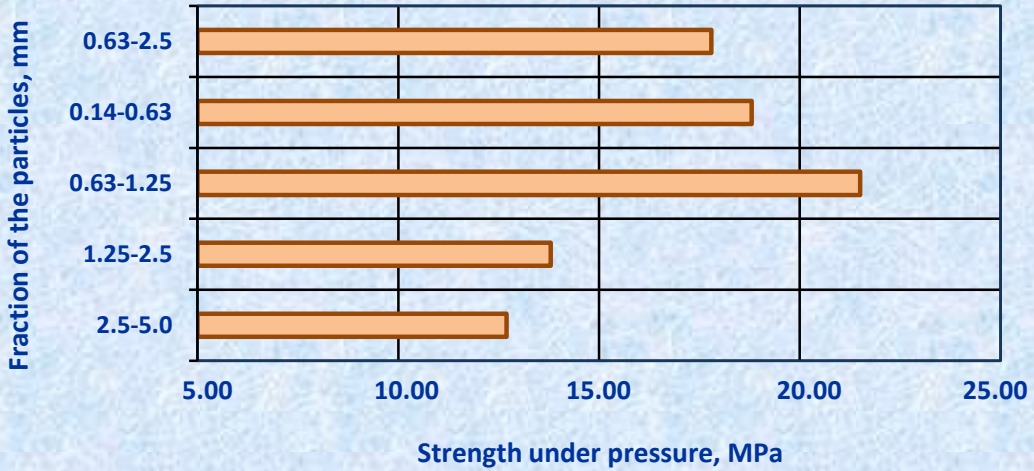
Aim of the study

The aim of the study is the developing of resource-saving magnesia compositional material with a lower density.

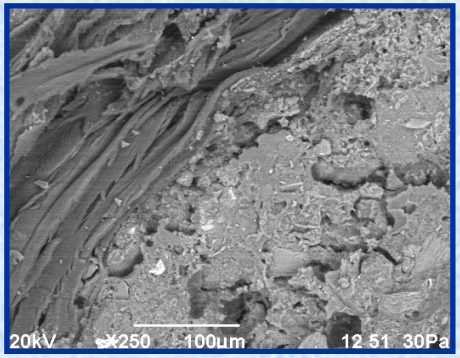
To achieve the set goal the following tasks have to be done: to study the influence of porous technogenic particles on the materials' structure; to design the moulding mixture composition, providing the getting of the composition with the density not more than 1000 kg/m^3.

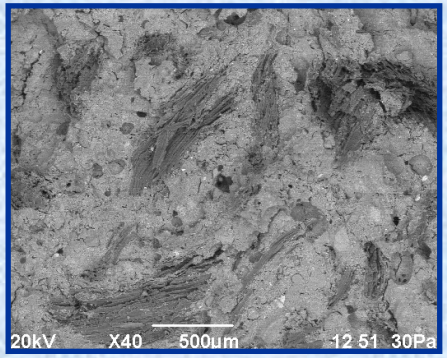


The influence of the size of the arboreal filler's particles on the materials' density

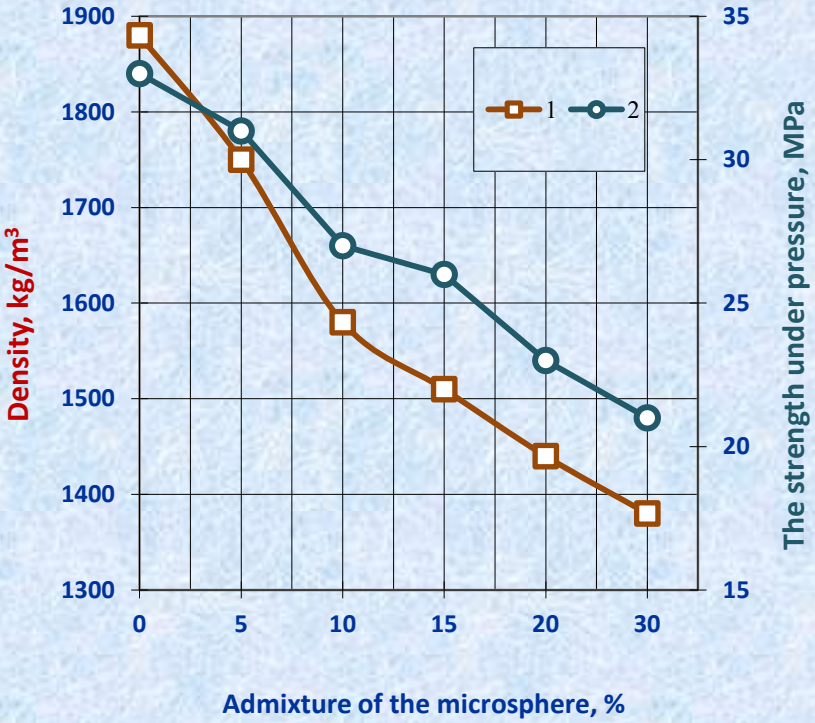


The influence of the size of the arboreal filler's particles on the materials' strength

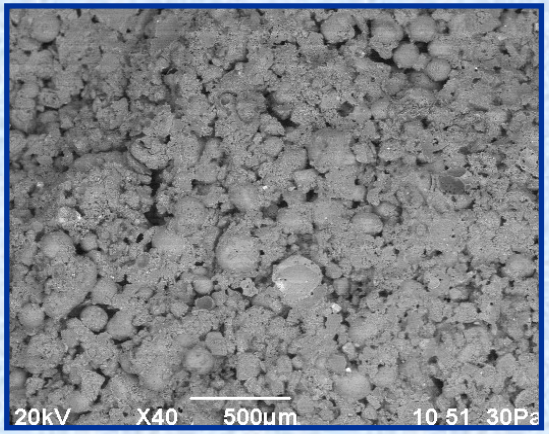


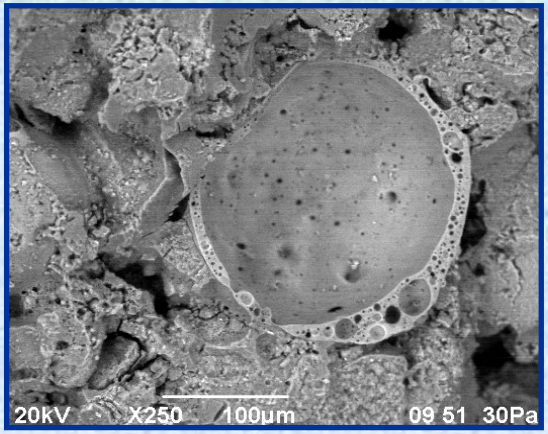


The influence of the size of the arboreal filler's particles on the materials' strength

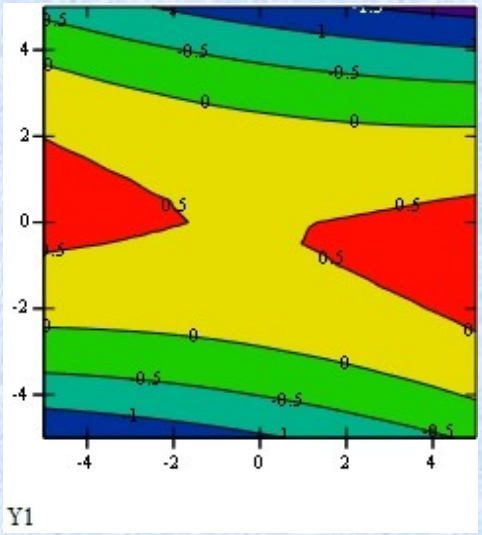


The influence of the size of the arboreal filler's particles on the materials' strength

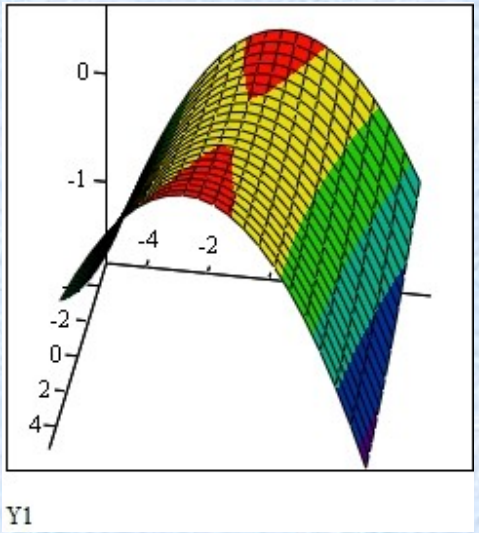




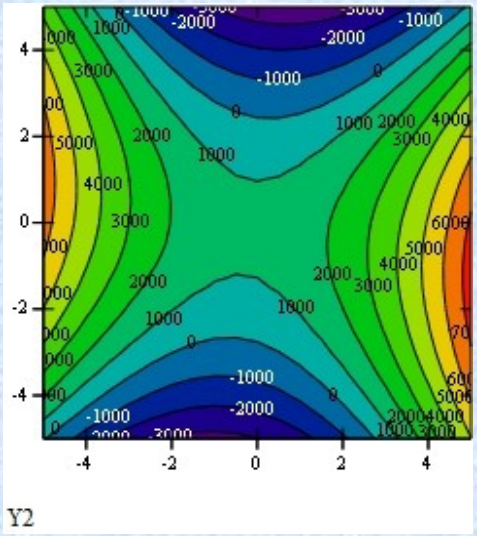
The influence of the size of the arboreal filler's particles on the materials' strength



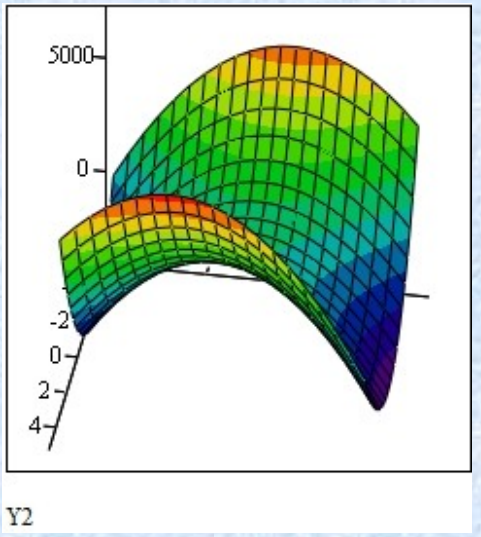
$Y_1 = 0.531 + 0.0015x_1 - 0.022x_2 + 0.0045\,x_1^2 - 0.067\,x_2^2 - 0.021\,x_1\,x_2$



The surfaces of the response of the liquid-solid ratio's dependence on the filler's structure



$Y_2 = 1228 + 74x_1 - 60{,}667\,x_2 + 222x_1^2 - 182\,x_2^2 - 82{,}75\,x_1\,x_2$



The surfaces of the response of the compositions density's dependence on the filler's structure

Summary

- Magnesia compositions on the basis of porous technogenic fillers are offered. The effectiveness of the fillers, containing arboreal particles and ash microsphere, is determined in order to create magnesia materials with a reduced density.
- Combination of fibrous and hollow spherical particles improves moulding properties of the raw materials' mixture, and provides the formation of a combined porosity.
- The resource-saving of the developed compositions is provided by the use of technogenic materials of different origin, and by low power-intensity of magnesia products' technology.

Thank you for attention!