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High-temperature oxide alumo-yttrium fibers based on organo-yttrium oxane alumoxanes

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High-temperature oxide alumo-yttrium fibers were prepared by melt-molding of fiber forming organo-yttrium oxane alumoxanes those were for the first time synthesized at GNIChTEOS. The molding was carried out at temperature of 60°-150°C, with the following heat treatment in air at 1300°-1500°C. The obtained alumo-yttrium fibers were studied by physicochemical methods (SEM, IR, X-ray phase analysis). It is found that, depending on the molar ratio of Al:Y in the initial organo-yttrium oxane alumoxanes, the ceramic fibers consist of the following phases: corundum α -Al₂O₃, garnet Y₃Al₅O₁₂ (YAG), YAlO₃ (YAP) and Y₄Al₂O₉ (YAM). It is known that these structures have high melting points. Therefore, the obtained fibers can be used to prepare high-heat-resistant and chemically inert ceramic composites.

Biography

Tatiana Apukhtina has completed her PhD from State Research Institute for Chemistry and Technology of Organoelement Compounds. She is the Senior Researcher at the institute. Her scientific interests cover physical-mechanical and physical-chemical analysis of components of ceramic composite materials.

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