

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

Tatiana Apukhtina

*State Research Institute for Chemistry and Technology of Organoelement Compounds, Russia*

### **Abstract**

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  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, garnet Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> (YAG), YAlO<sub>3</sub> (YAP) and Y<sub>4</sub>Al<sub>2</sub>O<sub>9</sub> (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.

tatiana.apukhtina@yandex.ru