

Title: Study of new type of Ti-NT nanotubes that can be used as a filler in polymer matrix

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Abstract: The subject of presented work has been devoted to a structure of titanate nanotubes which were prepared by hydrothermal treatment of TiO_2 powder in NaOH solution. Structure determination was done mainly with two complementary methods - X-ray diffraction and transmission electron microscopy. A influence of structure by changing particle size and crystal structure of the initial powder TiO_2 was studied as well. Three different models of nanotube structure were build. These models were used for a calculation of powder X-ray diffraction pattern and they were compared to experiment pattern.

Keywords: titanates nanotubes, computer simulations of powder X-ray diffraction patterns, X-ray diffraction, electron microscopy