$BaTiO_3$ powders prepared by electric discharge assisted mechanical milling (EDAMM) method

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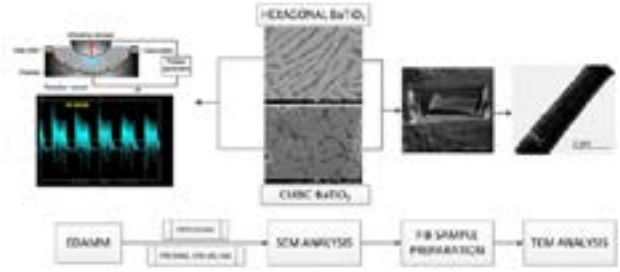
Over the years electric discharge assisted mechanical milling device had proven to be fast and extremely effective method for powders processing and synthesis . Thus, as a next step an in-depth analysis of the products was performed to define the processes that govern specific compounds formation. In this work we present low and high temperature $BaTiO_3$ perovskite phases depending on processing conditions used. As characterization techniques scanning electron microscope was used to visualize grains morphologies of prepared disc-shaped samples and to define the regions of final and intermediate products. elemental analysis using backscattered electron detector and aztec software was also performed. EBSD system being part of the abovementioned Microscope was utilized to prove the crystallographic structure and quantify the constituent phases. additionally, transmission electron microscopy was performed to observe the grain boundaries of specific regions on the samples prepared by focused ion beam instrument. Described procedures are meant to provide extensive crystallographic information which will be used to define the growth mechanism of specific phases in $BaTiO_3$ under different EDAMM conditions.



Biography

Monika Wyszomirska graduated from a master's of materials engineering degree at Warsaw University of Technology, Poland in 2013. Since then she has been involved in doctoral studies at University of Wollongong, Australia. Monika is presently working on plasma processing of ceramic powders with special interest placed on phase transformations during pulsed plasma processing. Her aim is to broaden then understanding of the processes occurring during Electric discharge assisted mechanical Milling (EDAMM) therefore leading to more efficient and optimization of the processing parameters. She is also heavily involved in materials characterization by X-ray diffraction, secondary and transmission electron microscopy and especially interested in sample preparations by FIB-SEM.

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