Synthesis of Nb-doped SrTiO₃ by a modified glycine-nitrate process - DTU Orbit (30/12/2018)

Synthesis of Nb-doped SrTiO₃ by a modified glycine-nitrate process
The objective of the present investigation was to develop a technique to synthesize submicronic particles of Nb-doped strontium titanate with a homogeneous composition. This was achieved by a modified glycine-nitrate process, using Ti-lactate, Nb-oxalate, and Sr(NO₃)₂ as starting materials. A combination of both citric acid and glycine was needed in order to integrate the useful features of both complexation and combustion natures of citric acid and glycine, respectively. The amount of citric acid, glycine, and nitrates in the starting solution, as well as the source for extra nitrates, and the uniformity of heating during the thermal dehydration step were found to have significant influence on the final phase purity of the material. Calcination at 1100 degrees C in 7% H₂ in N₂ produced single phase Nb-doped strontium titanate with grain sizes of about 100 nm in diameter on average. (c) 2007 Elsevier Ltd. All rights reserved.

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