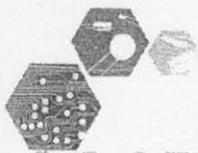


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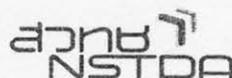
Abstract Book

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Effects of K_2CO_3 and Na_2CO_3 Excess on the Properties of Sodium Potassium Niobate Ceramics

P. Bomlai^{a,*}, P. Wichianrat^a, S. Muensit^b and S. J. Milne^c

^aMaterials Science Program, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand.

^bDepartment of Physics, Faculty of Science, Prince of Songkla University, Songkla 90112

^cInstitute for Materials Research, University of Leeds, Leeds LS2 9JT, United Kingdom.

* Corresponding e-mail address: ppornsuda@yahoo.com

Nowadays, lead-free materials have been urgently demanded from the viewpoint of environmental protection. One of the promising candidates to replace the lead containing materials is sodium potassium niobate. $(Na_{1-x}K_x)NbO_3$ is a combination of ferroelectric $KNbO_3$ and antiferroelectric $NaNbO_3$, and forms a morphotropic phase boundary (MPB) in composition K/Na around 50/50 ($x = 0.5$). In this research, $(Na_{0.5}K_{0.5})NbO_3$, NKN, ceramics with excess of carbonate starting powders (0, 0.01, 0.03 and 0.05 mol) were prepared by solid – state reaction. The results showed that the K_2CO_3 and Na_2CO_3 excess affected significantly to sintering temperature, bulk density, microstructure and dielectric property. Whereas, the XRD result showed that there was no secondary phase formed in all samples. The grain size of excess - samples was smaller than an unexcess - NKN sample. The highest dielectric constant value was found to be 1707 for sample with excess 0.01 mol.

Keywords: Powders: solid_state reaction, Dielectric properties, Niobates, Microstructure-final.