

ChemTech

International Journal of ChemTech Research CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555 Vol.10 No.15, pp 135-145, 2017

Review on dielectric study of polycrystalline rare earth substituted Tungsten Bronze electroceramics for high temperature applications

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Abstract: This review paper describes a new era of polycrystalline rare earth substituted tungsten bronze ferroelectric ceramics for high temperature device applications. In the scientific and technological period ferroelectric ceramics are well known due to voltage dependent dielectric constant. But below Curie temperature ferroelectric ceramics exhibits hysteresis and this phase is not suitable for high device applications. Generally for paraelectric state to ferroelectric state particularly thin films have great potential applications including nonvolatile memories, optoelectronics devices and integrated electronics as passive components. To achieve high figure of merits for high temperature applications, low dielectric loss is most important. Tungsten bronze ferroelectric ceramics have capabilities to give higher tunability with low dielectric loss due various cations substitution at various sites. Here, special attention has been paid to the study the effect of composition, dielectric properties, and ferroelectric properties of tungsten bronze ferroelectric ceramics which are important materials for high temperature applications.

Keyword : Ferroelectric; Tungsten Bronze; Dielectric constant; Dielectric loss.

Shilpi Jindal et al /International Journal of ChemTech Research, 2017,10(15): 135-145.
