**Structural and dielectric performance of (1-x) BaTiO3-X Bi (Zn2/3Ta1/3) O3ceramic for MLCC application.**

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The structural and dielectric behavior of Bismuth doped Barium Titanate is studied for the possible MLCC application. (1-x) BaTiO3-X Bi (Zn2/3Ta1/3) O3 [(1-x) BT–x BZT], (x=0.05,0.1,0.15,0.2) ceramics are prepared via the solid- state reaction route. The effects of BZT substitution for BT on the crystal structure and dielectric properties are examined. The crystal Structure and phase transitions are identified by XRD. As the BZT content increases, the Curie temperature of the solid solution gradually decreases and gives rise to a diffuse phase transition. A relaxor-like behavior is obtained for the doped BT and the value of diffusivity can be calculated using the modified Curie-Weiss law. The temperature coefficient of capacitance is calculated from the dielectric constant by using the standard formula and it is verified, whether this ceramic is applicable for MLCC application or not.

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