

Poster Presentation

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Studies on $\text{Bi}_2\text{Mn}_4\text{O}_{10}$ and its Chromium and Cobalt doped series

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$\text{Bi}_2\text{Mn}_4\text{O}_{10}$ was synthesized using organic precursor based glycerin nitrate method. In this method, the precursor prepared from corresponding metal salts in glycerin was calcined at various temperatures (300 – 800 °C) for about 18 hours to determine the synthesis temperature of the formation of $\text{Bi}_2\text{Mn}_4\text{O}_{10}$. The XRD data of the calcined specimens reveals that the expected mullite type phase starts to form at 600 °C which becomes more crystalline with further increase in calcination temperature. Attempts were also made to prepare chromium and cobalt doped bismuth manganate with nominal composition $\text{Bi}_2\text{M}_x\text{Mn}_{4-x}\text{O}_{10}$ (M = Cr & Co ; $0 \leq x \leq 2.0$) by the same method. The XRD patterns of this series show mullite type single phase up to $x = 1.0$ composition. For further increase in x , an unknown phase appears along with mullite type phase, which could not be indexed yet.

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[1] Niizeki, N. & Wachi, M. (1968) Z. Kristallogr., 127, 173-187

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