Magnetocaloric studies of Polycrystalline $HoMnO_3$ Multiferroics

N. Pavan Kumar[1*], A.Srinivas[1], M.Manivel Raja[1] , P. Venugopal Reddy[2]

[1]Advanced Magnetics Group, Defence Metallurgical Research Laboratory, Kanchanbagh, Hyderabad-500 0058, INDIA

[2]Vidya Jyothi Institute of Technology, Aziznagar Gate, Chilkur Balaji Road, Hyderabad-500075, INDIA

***pa11akash@gmail.com**

Abstract: Polycrystalline $HoMnO_3$ samples were prepared through solid state reaction method. X-ray diffraction studies revealed that the sample crystallized in hexagonal structure with P63cm space group. Iodometric titrations confirmed that the samples are up to the stoichiometry without any oxygen deficiency. Heat capacity measurements were performed on the sample under 0 T, 2 T, 5 T and 9 T fields and Magnetocaloric effect (MCE) has been calculated from it. The Isothermal entropy change, adiabatic temperature change and relative cooling power are 14J/kg-K, 4K and 350J/kg respectively at 9T magnetic field which have almost reached 80% of the single crystalline $HoMnO_3$ samples.