

Ageing Phenomena in La-Sr Manganites with Divalent Substituents for Manganese

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Variations of electromagnetic and structural characteristics of $\text{La}_{1-c+x}\text{Sr}_{c-x}\text{Mn}_{1-x}\text{Me}_x\text{O}_{3+\gamma}$ manganites (Me=Zn,Ni) during storage time up to 30000 hours at room temperature and after frequentative thermal cycling in the 300–573 K range were investigated. Changes of magnetization of all samples were within the error of measurement. In most cases Curie point (T_c) showed irregular variations within the range of 20%, while zinc-substituted manganites with relatively high values of "c" exhibited some trend of T_c rise. The resistance of all samples increased during storage period, but changes of the magnetoresistance were different. The cell volume of single-phase manganites decreased over time, that may indicates an increase in oxygen content. However, the sample with the highest Ni content ($x=0.125$) at $c=0.19$ suffered phase transition "rhombohedral–orthorhombic structures", which cannot be explained by the oxygen absorption. Probably, this effect was due to the rearrangement of the ions and vacancies between crystal sublattices of manganite.