Preparation, Crystal and Magnetic Structure of the Double Perovskites Ca_2TWO_6 (T = Co, Ni)

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 Ca_2TWO_6 (T = Co, Ni) perovskites have been prepared in polycrystalline form by thermal treatment, in air, of previously decomposed citrate precursors. These materials have been studied by X-ray (XRD) and neutron powder diffraction (NPD) data. Our results show that these compounds crystallize, at room temperature, in the monoclinic space group $P2_1/n$. The two perovskites contain divalent T (T = Co, Ni) cations. The low temperature antiferromagnetic ordering has been followed from sequential NPD data. Peaks of magnetic origin appear at the NPD patterns below temperatures of $T_N =$ 36 K and $T_N =$ 56 K for the Co and Ni compounds, respectively. The magnetic structures are both defined by a propagation vector $\mathbf{k} = (1/2, 0, 1/2)$, and can be described as an array of ferromagnetic layers of Co(Ni) moments, perpendicular to the [101] directions, coupled antiferromagnetically.

Key words: Perovskites, X-Ray Data