World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

# Crystal Structures and High-Temperature Phase Transitions of the New Ordered Double Perovskites SrCaCoTeO6 and SrCaNiTeO6

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**Abstract :** In the present work we report X-ray powder diffraction measurements of SrCaCoTeO6 and SrCaNiTeO6, at different temperatures. The crystal structures at room temperature of both compounds are determined; and results showing the existence of high-temperature phase transitions in them are presented. Both compounds have double perovskite structure with 1:1 ordered arrangement of the B site cations. At room temperature their symmetries are described with the P21/n space group, that correspond to the (a+b-b-) tilt system. The evolution with temperature of the structure of both compounds shows the presence of three phase transitions: a continuous one, at 450 and 500 K, a discontinuous one, at 700 and 775 K, and a continuous one at 900 and 950 K for SrCaCoTeO6 and SrCaNiTeO6, respectively with the following phase-transition sequence: P21/n → I2/m → I4/m → Fm-3m.

**Keywords :** double perovskites, caracterisation DRX, transition de phase
**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development
**Conference Location :** Chicago, United States
**Conference Dates :** December 12-13, 2020