

PREPARATION, THERMAL AND DIELECTRIC PROPERTIES OF NEW PHASES IN THE SYSTEM $\text{CaTiO}_3 - \text{KMgF}_3$

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The scientific research increase on the perovskite type titanate compounds since the discovery of ferroelectricity in BaTiO_3 is spectacular. Nowadays, the perovskite ceramics are an extremely important class of materials in the design of high technology devices for several electronic components: capacitors, sensors, resonators, memories...

Calcium titanate CaTiO_3 belongs to the perovskites group with an orthorhombic symmetry at room temperature and undergoes a sequence of phase transitions: $\text{Pbnm} - \text{I4/mcm} - \text{Pm}\bar{3}\text{m}$. In the present work, first we prepare new oxifluorides in the chemical system $\text{CaTiO}_3 - \text{KMgF}_3$ then, we study the influence of KMgF_3 on the crystallographic and phase transitions temperatures of CaTiO_3 .

A new solid solution $\text{Ca}_{1-x}\text{K}_x(\text{Ti}_{1-x}\text{Mg}_x)\text{O}_{3-3x}\text{F}_{3x}$ is obtained at low temperature from CaTiO_3 and KMgF_3 . X-ray diffraction analysis are carried out on these oxifluorides at room temperature and the cell parameters are determined. The phase transitions are investigated by dielectric measurements and differential scanning calorimetry from room temperature up to 600 °C.