

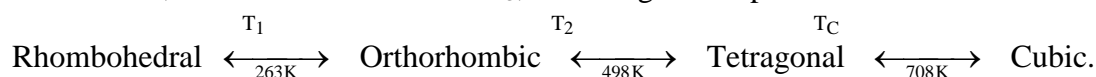
CRYSTALLOGRAPHIC AND DIELECTRIC PROPERTIES OF NEW FERROELECTRIC OXYFLUORIDES RELATED TO KNbO_3 .

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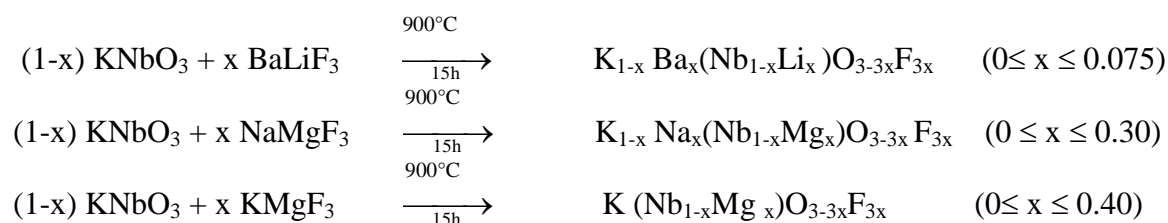
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The ferroelectric ABO_3 compounds with the perovskite structure are of great interest for applications. Derived BaTiO_3 compounds have stimulated many investigations. On the contrary, only few results are known on derived KNbO_3 materials; KNbO_3 undergoes three phase transitions, similar to those of BaTiO_3 , but at higher temperatures:



The study of the KNbO_3 - BaLiF_3 , KNbO_3 - NaMgF_3 and KNbO_3 - KMgF_3 systems has allowed us to determine the influence of various ionic substitutions on the crystallographic and dielectric properties of KNbO_3 . All reactions were performed under dry helium atmosphere in order to prevent from any hydrolysis:



X-ray diffraction investigations have shown each sample of the previously mentioned solid solutions to have an orthorhombic symmetry at room temperature. As the rate of substitution increases, the volume of the orthorhombic cell:

- increases with BaLiF_3 - decreases with NaMgF_3 and is almost constant when KMgF_3 is used.

The ferroelectric Curie temperature decreases in any case with x from T_C (KNbO_3) = 708 K to the lowest value $T_C = 430$ K for $\text{K}_{0.70}\text{Na}_{0.30}(\text{Nb}_{0.70}\text{Mg}_{0.30})\text{O}_{2.10}\text{F}_{0.90}$. The composition dependences of the values of T_1 rhomb.-orth. and T_2 orth.-tetr. have been also determined. These results are compared to those obtained with the same additives but from BaTiO_3 .