Properties and structural phase transitions of $(CH_3NH_3)_3Sb_2I_9$.

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Rok wydania

1990

Czasopismo

Ferroelectrics

Numer woluminu

103

Strony

83-90

DOI

10.1080/00150199008211375

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The tris (methylammonium) nonaiododiantimonate (III) crystals were grown. The preliminary X-ray diffraction studies showed that at room temperature they are isomorphous with $Cs_3Sb_2I_9$. The crystals are hexagonal, space group $P6_3/mmc$ with the unit cell parameters; a = 8.543 (1), c = 21.520 (7) å, Z = 2, V = 1360 $Å^3$. The DSC studies revealed two structural phase transitions at T_{c1} = 147 K, and T_{c2} = 111 K. The dielectric studies showed only one anomaly at T_{c1} = 147 K. The high temperature phase behaves like a plastic one with respect to a freedom of rotational motions of methylammonium cations. The dielectric and pyroelectric properties seem to indicate antiferroelectric ordering below T_{c1}.

Adres publiczny

https://doi.org/10.1080/00150199008211375