

## Structure and phase transitions in chloroantimonate(V) crystals: $[(C_2H_5)_3NH]SbCl_6$ and $[(C_2H_5)_3NH]SbCl_6 \cdot 1/2[(C_2H_5)_3NH]Cl$ .

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New triethylammonium salts:  $[(C_2H_5)_3NH]SbCl_6$  (TCA) and  $[(C_2H_5)_3NH]SbCl_6 \cdot 1/2[(C_2H_5)_3NH]Cl$  (TCAT) have been synthesized. The compounds crystallise in monoclinic symmetry: space groups  $P21/n$  and  $P21/c$ , for TCA at 293 K and TCAT at 100 K, respectively. The crystal structure of  $[(C_2H_5)_3NH]SbCl_6$  consists of discrete ionic pairs—triethylammonium cations and hexachloroantimonate anions—linked via the bifurcated  $N-H \cdots Cl$  hydrogen bonds. The crystal structure of  $[(C_2H_5)_3NH]SbCl_6 \cdot 1/2[(C_2H_5)_3NH]Cl$  is composed of three symmetrically independent triethylammonium cations, chlorine anion and two symmetrically independent hexachloroantimonate anions. TCA undergoes a structural phase transition at 336 K (on heating) into the orthorhombic  $C222$  space group, whereas TCAT reveals a structural phase transition at 332 K. The phase transitions are of the first order type. TCA shows a ferroelastic domain structure below 336 K. Differential scanning calorimetry, dilatometric, dielectric dispersion and Raman scattering measurements have been used to study the phase transition mechanisms in these triethylammonium salts.

### Adres publiczny

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