

Synthesis, characterization, single crystal X-ray structure determination and packing analysis of thallium(I) anthracene-9-carboxylate, $[\text{Tl}_4(\text{H}_2\text{O})_2(\text{anthracene-9-carboxylate})_4]$.

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Streszczenie

A new tetranuclear thallium complex, $[\text{Tl}_4(\text{H}_2\text{O})_2(\text{anthracene-9-carboxylate})_4]$ was isolated by reaction of hot aqueous solution of thallium(I)sulphate with sodium salt of anthracene-9-carboxylic acid in water taken in appropriate stoichiometric ratio. The newly synthesized complex was characterized by elemental analysis, thermogravimetric analysis, spectroscopic studies (FT-IR, UV-Visible, and multinuclear NMR). Complex crystallizes in monoclinic crystal system with $P2_1/n$ space group. X-ray crystal structure determination revealed the presence of neutral centrosymmetric tetranuclear complex which contains two symmetry independent thallium cations. Tl1 is four-coordinate and bonded to three different anthracene-9-carboxylate anions. The other thallium cation, Tl2, is three-coordinate, being surrounded by two carboxylate oxygen atoms from two different ligands; anthracene-9-carboxylate and a water molecule. The crystal lattice is stabilized by $\text{CH/OH}\cdots\text{O}$ hydrogen bonding and $\text{cation}\cdots\pi$ interactions.

Słowa kluczowe

Anthracene-9-carboxylate (9-ACA), X-ray, Tetranuclear complex, spectroscopic studies

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