

(CH₃NH₃)₂Sb₂S₄, a New Thioantimonate(III) with Building Groups Stabilized by Hydrogen Bonds

Michael Schur, Astrid Gruhl, Christian Näther, Inke Jeß, and Wolfgang Bensch

Institut für Anorganische Chemie, Universität Kiel, Otto Hahn Platz 6/7, D-24098 Kiel

Reprint requests to W. Bensch. E-mail: wbensch@ac.uni-kiel.de

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(CH₃NH₃)₂Sb₂S₄ has been isolated from the reaction of antimony with sulfur in the presence of manganese in an ethanolic solution of methylamine under solvothermal conditions. Two pyramidal SbS₃ units are linked via common S-S edges to give dimeric Sb₂S₄²⁻ anions, which are joined via secondary Sb...S contacts of 3.074(2) and 2.975(2) Å forming infinite ¹[SbS₂]⁻²ⁿ chains consisting of edge-linked ψ-SbS₄ trigonal bipyramids. The cis configuration of the Sb₂S₄²⁻ anions in the title compound is observed for the first time. A specific hydrogen-bonding pattern between the amino-hydrogen and the sulfur atoms stabilizes this configuration and gives rise to anionic layers separated by the methyl groups.