

A Novel Crown-Ether Stabilized Oxonium Halogenochalcogenate(IV): [H₇O₃(Bis-dibromo-dibenzo-30-crown-10)][Se₂Br₉]·1.5CH₂Cl₂

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Dedicated to Professor Hubert Schmidbaur on the occasion of his 70th birthday

The title compound [H₇O₃(bis-dibromo-dibenzo-30-crown-10)][Se₂Br₉]·1.5CH₂Cl₂ (**1**) was isolated from a solution of SeBr₄ and dibenzo-30-crown-10 in CH₃CN/CH₂Cl₂ containing a small amount of hydrobromic acid. During the reaction the crown ether is brominated by HBr.

The compound crystallizes in the monoclinic space group $P2_1/n$ with $a = 17.688(11)$, $b = 14.921(6)$, $c = 20.521(12)$ Å, $\beta = 97.71(5)^\circ$, and $Z = 4$. **1** is a novel example in the series of supramolecular halogenochalcogeno acids prepared in our group in which different oxonium cations are stabilized and encapsulated by crown ethers. Especially in this class of superacids complexation by cyclic polyethers offers convenient and variable possibilities for the controlled synthesis of oxonium cations. In the present case the large dibenzo-30-crown-10 ring systems are able to stabilize trinuclear [H₇O₃]⁺ cations within their cavities. Besides the macromolecular cations and some dichloromethane solvent molecules, the crystal structure of **1** contains molecular [Se₂Br₉][−] ions with approximate D_{3h} symmetry, each consisting of two face-sharing SeBr₆ octahedra.

Key words: Crystal Structure, Chalcogenates, Oxonium Ions, Crown Ether