Secondary Interactions in Gold(I) Complexes with Thione Ligands. 2. Three Ionic Camphorsulfonates with *Z'* = 2 [1]

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All three structures of the form bis(thione)gold(I) camphor-10-sulfonate [thione = imidazolidine-2-thione, **1**; 1-methyl-imidazolidine-2-thione, **2**; thiazolidine-2-thione, **3**] crystallize in chiral space groups with $Z' = 2$; local inversion symmetry of the cationic assemblies (less pronounced for **3**) provides some rationalisation for this. The basic structural units are accounted for in terms of classical hydrogen bonds, leading to rings involving ion pairs for **1** and **2**, but to infinite chains of anions and cations for **3**. Neighbouring ion pairs in **1** are joined by further classical hydrogen bonds, in **2** *via* interactions between parallel S-Au-S axes. Other interactions include Au···N for **1**, Au···S and Au···O for **3**, and weak hydrogen bonds C-H···O and C-H···S, especially between adjacent chains in **3**. Each structure is divided into hydrophobic and hydrophilic regions.

Key words: Aurophilicity, Thiones, Camphorsulfonate, Gold, Hydrogen Bonds