MS35-P15 | CRYSTAL STRUCTURES AND TOPOLOGICAL ANALYSIS OF AG(I) COMPLEXES WITH 1,4-HETERODISUPSTITUTED CYCLOHEXANES

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Silver nitrate and silver perchlorate were combined with thiomorpholine-4-carbonitrile (**L1**) and piperazine-1,4-dicarbonitrile (**L2**) to observe the effect of small structural changes in used ligands on the final structures. Reactions with **L1** yield $\{[Ag(\mathbf{L1})_2](NO_3)\}_n$ (**1**) and $\{[Ag(\mathbf{L1})_2](ClO_4)\}_n$ (**2**), while **L2** reactions produce $\{[Ag(\mathbf{L2})_2](NO_3)\times H_2O\}_n$ (**3**) and $\{[Ag(\mathbf{L2})_2](ClO_4)\}_n$ (**4**). The XRPD investigation indicates that the samples **1**–**4** correspond to the single-phase X-ray powder patterns in accordance with the structural model obtained by SCXRD. Topological analysis suggests that **1** and **2** are two-dimensional structures that have a **sql** underlying topology, while **3** and **4** are three-dimensional metal-organic frameworks with **dia** underlying nets. In **3**, the MOF comprises five interpenetrating networks related by 6.67 Å translations along the [100] direction (interpenetration class Ia) [1]. In **4**, there are two crystallographically different Ag(I) ions. The first one builds two interpenetrating networks related by 12.61 Å translations along the [100] direction (interpenetration class Ia) [1]. The second Ag(I) ion gives four interpenetrating networks related both by 12.61 Å translations along the [100] direction and by an inversion centre (interpenetration class IIIa) [1].

[1] Baburin I.A, Blatov V.A. Carlucci L, Ciani G. & Proserpio D. M. (2005). *J. Solid State Chem.* 178, 2452-2474