MS35-P124 - LATE | STRUCTURAL CHEMISTRY OF BINARY COCRYSTALS OF DIAMINES AND DIOLS

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Simple amines and alcohols are usually used as “building blocks” in supramolecular synthesis, solvents, ligands or cocrystallization agents. Variety of applications originates in presence of functional groups able to participate in strong hydrogen bonds. As both hydroxyl and amine moieties are complementary, designing new cocrystals of such compounds can lead to complex structures with large diversity of crystal architectures.

Cocrystals of primary monoalcohols and amines exhibits a topology similar to allotropic form of gray arsenic - layers build by six-membered ring-shaped with chair conformation. In order to obtain complex three-dimensional motifs, cocrystallizations of linear aliphatic diamines and diols with different chain length were performed. Most of them are liquids at ambient condition, therefore an IR laser supported *in situ* crystallization method has been applied. In most of obtained phases containing saturated diols characteristic layers composed of six-membered, ring-shaped hydrogen bond motif is present. However, in some phases, like in the case of 1,5-diaminopentane with 1,5-pentanediol cocrystal, this motif does not occur, what is associated with a conformational change of both molecules. These structures contain molecules arranged in 1D columns instead. Relatively small change in shape of a molecule may affect the final structure. Indeed, cocrystallization of unsaturated 1,4-but-2-endiol with 1,4-diaminobutane and 1,6-diaminohexane resulted in formation of incommensurately modulated phases.

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