

# Di- bis Pentahydrate von fünf Alkyldiaminen. Eine Fallstudie zu ein- und zweidimensionalen Wasserpolymeren in Festkörpern [1]

Di- to Pentahydrates of Five Alkylenediamines. A Case Study of One- and Two-Dimensional Water Polymers in Solids [1]

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The crystal structures of five low-melting hydrates of *n*-alkane- $\alpha,\omega$ -diamines,  $\text{H}_2\text{N}(\text{CH}_2)_n\text{NH}_2 \cdot x \text{H}_2\text{O}$ , for short  $\text{C}_n \cdot x \text{W}$ , have been determined. As a common feature, the water molecules are mutually linked by hydrogen bonds  $\text{O}-\text{H}\cdots\text{O}$  to form low-dimensional polymers. These are a meandering chain in  $\text{C}_2 \cdot 2 \text{W}$  (space group  $I 2/a$ ,  $Z = 4$  formula units per unit cell), a zig zag chain in  $\text{C}_6 \cdot 2 \text{W}$  ( $P 2_1/c$ ,  $Z = 2$ ), a ribbon of consecutively condensed five-membered rings in  $\text{C}_3 \cdot 3 \text{W}$  ( $P 2_1/c$ ,  $Z = 4$ ) and a layer of condensed and spiro-linked rings of varying size each in  $\text{C}_7 \cdot 3 \text{W}$  ( $P\bar{1}$ ,  $Z = 4$ ) and  $\text{C}_4 \cdot 5 \text{W}$  ( $C 2/c$ ,  $Z = 4$ ). Further hydrogen bonding, between the water polymers and the bifunctional amine molecules, leads to overall connectivities which are three-dimensional in each structure.

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