

Evolution of bonding tendencies in the Group 12 dihalide: Trimers  $((MX_2)_3$  M = Zn, Cd and Hg; X = F, Cl, Br, I)

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As the investigation of the structural preferences of the group 12 dihalides expands, we examine in this contribution a small link in the chain between monomers and their extended solids: the trimer systems. Previous research uncovered a significant difference in the bonding preferences in the dimers and solids of these systems reflecting the linear vs bent structures of the monomers. The dihalide trimers are shown in this poster to follow this trend: The linear monomers form in each case a  $D_{2d}$  trimer with a maximum metal coordination of CN = 3, which requires a minimal amount of bending of the monomer units. The  $HgX_2$  systems are special; they form a more loosely bound  $C_2$  trimer (a distortion of the  $D_{2d}$  system). Our poster discusses the unusual behavior of the Hg systems, including the instability of the  $D_{2d}$  isomer, and explains it by considering the influence of relativistic effects on the bonding of Hg in compounds.