

**W0593**

**Nature's Sometimes Indifference to Stoichiometry in Assembling Crystal Structures – Hypersalts.** J.D. DiMarco, M.A. Galella, M.F. Malley, J.Z. Gougoutas, Solid State Chemistry, Bristol-Myers Squibb Pharmaceutical Research Inst., Rte. 206 & Province Line Rd., Princeton, NJ 08543.

Crystallization usually is regarded as a means of isolating one chemical component from a mixture (perhaps in combination with the solvent or an additional chemical component introduced by design). However, our results, and a survey of the ~350,000 crystal structures in the Cambridge Crystallographic Database, bear testimony to Nature's ability to assemble surprising combinations of chemical components into well-ordered three dimensional crystals, which in fact represent a failed separation. We present several examples of Hyperacidsalts: homogeneous crystal structures which contain an excess of the acid component (e.g. a pentahydrochloride of trimethylamine). In several other instances, solvates of a base are crystallographically isostructural with some salts of the base, resulting in crystalline solid solutions of variable stoichiometry.