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Crystal Structure Analyses on Polyphosphorus Compounds

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Crystal structure analyses on polyphosphorus compounds prepared by Baudler and coworkers have been carried out. Among these are chains $(\text{Me}_3\text{Si}-(\text{t-BuP})_4-\text{SiMe}_3)$, rings $((\text{t-BuP})_2\text{C}=\text{C}(\text{C}_6\text{H}_4\text{Cl})_2)$, $(\text{t-BuP})_2\text{BNET}_2$, $(\text{t-BuP})_2\text{SiPh}_2$, $(\text{t-BuP})_2\text{GeEt}_2$, $(\text{t-BuP})_2(\text{GePh}_2)_2$, $(\text{Me}_2\text{Si}(\text{t-BuP})_2)_2$, bicyclic $((\text{t-BuP})_2\text{C}(\text{t-BuP})_2)$ (1), $\text{t-Bu}_4\text{P}_6$, $(\text{t-BuP})_2\text{Si}(\text{t-BuP})_2$, $\text{t-Bu}_6\text{P}_8$, $\text{t-Bu}_6\text{As}_2\text{P}_6$) and polycyclic compounds $((\text{t-BuP})_8\text{Si}_2$, $\text{P}_9(\text{t-Bu})_3$ (2), $\text{P}_{12}(\text{i-Pr})_4$ (3)), coordinated molecules $([(\text{t-BuP})_3\text{Cr}(\text{CO})_5])$, $([(\text{i-PrP})_3\text{W}(\text{CO})_5])$ and polyanions $(\text{Li}_4\text{P}_{26}\cdot 16\text{THF}$ (4)). Some structural elements like three-membered rings, spirocyclic connections between small rings and phosphorus cages are of special interest. All the bond lengths and angles are in the expected ranges. A selection of the structures will be demonstrated, compared and discussed according to molecular geometry and packing.

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