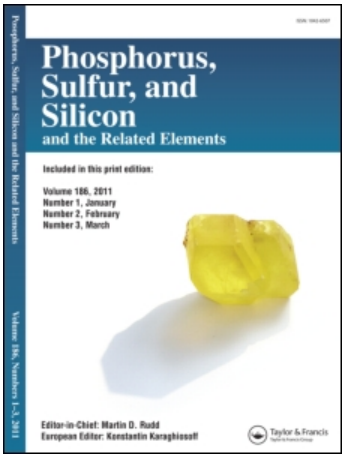

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Organoantimony Rings Compared with Analogous Phosphorus Homocycles

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ORGANOANTIMONY RINGS COMPARED WITH ANALOGOUS PHOSPHORUS HOMOCYCLES

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Analogous ring systems $(RE)_n$ (E = P, Sb) [1,2] with R = Et, Ph, Tol, tBu, $(Me_3Si)_2CH$ are different with respect to ring-ring-reactions.

Phosphorus homocycles like $(EtP)_3$, $(EtP)_4$, $(EtP)_5$ are independent species at room temperature whereas the analogous antimony rings $(EtSb)_4$ and $(EtSb)_5$ exist only in equilibria in solution.

Phenyl phosphorus rings are the pentamer $(PhP)_5$ and the hexamer $(PhP)_6$. Both rings exist as well in solution as in the crystalline state. Phenyl antimony is hexameric only in the crystalline state. On dissolution pentamers and tetramers are formed. Similar reactions are also observed with o-, m-, and p-tolyl antimony rings. Equilibria between phosphorus rings are observed however at elevated temperatures.

With bulky substituents the behaviour of analogous phosphorus and antimony rings becomes similar. The rings $(RE)_4$ (E = P, Sb; R = tBu, $(Me_3Si)_2CH$). preserve the ring size in various phases.

Structures of analogous phosphorus and antimony rings are related. In the crystalline state the four membered rings are folded and the substituents adopt trans positions. The six membered rings have chair conformations in the crystal with equatorial substituents. Generally folding is more pronounced in antimony rings

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