

Versatile Chemistry of Phosphorus-Rich Compounds

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Phosphanes can exhibit similar constitutions and conformations as their analogous carbon compounds. These similarities can be explained by the isolobal principle. However, due to the presence of lone pairs of electrons, phosphanes can for example act as ligands in complexes.

Phosphorus-rich transition metal or main group metal complexes are promising candidates as precursors for phosphorus-rich metal phosphides, some of which show interesting catalytic properties.^[1,2] Although ³¹P NMR spectra of phosphorus-rich compounds are often very complex, the spectral analysis and, if possible, simulation offer a powerful tool to acquire structural information about these compounds.^[3-6]

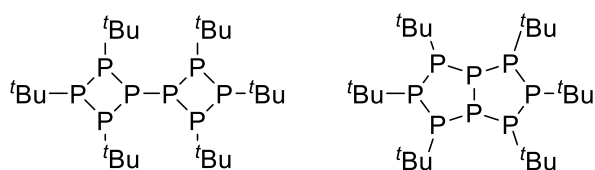


Figure 1: Compounds employed in complexation reactions.

We recently reported various complexes of two isomers of hexa-*tert*-butyl-octaphosphane (Figure 1).^[3-5] Rational syntheses to these^[5] and other phosphorus-rich organophosphorus compounds have been developed and are presented.

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