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Synthesis of Organophosphorus Compounds with -P=P= and -P=S= Units

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Synthesis of Organophosphorus Compounds with -P=P= and -P=S(Units

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The lithium phosphide tetrahydrofurane complexes $\frac{1}{2}$ react with phosphinic acid chlorides ($\frac{2}{2}$) to yield diphosphenes ($\frac{4}{2}$), possessing a tri- and a quinquevalent phosphorus atom; the diphosphane oxides $\frac{3}{2}$ are regarded to be intermediate steps of the transformation.

An analogous reaction sequence of $\underline{\underline{1}}$ with sulfinic acid chlorides ($\underline{\underline{5}}$) leads to the hitherto unknown phosphanyliden sulfuranes $\underline{\underline{6}}$.

1 +
$$Cl - S - R'$$
 $\frac{O}{-LiCl,-2THF}$ $R \sim P = S < \frac{OTms}{R'}$

The behaviour of the P/P- and the P/S-double bonds of $\underline{4}$ and $\underline{6}$ towards cycloaddition partners is discussed.