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Synthesis of Hexa- and Pentacoordinated Phosphorus Compounds from White Phosphorus

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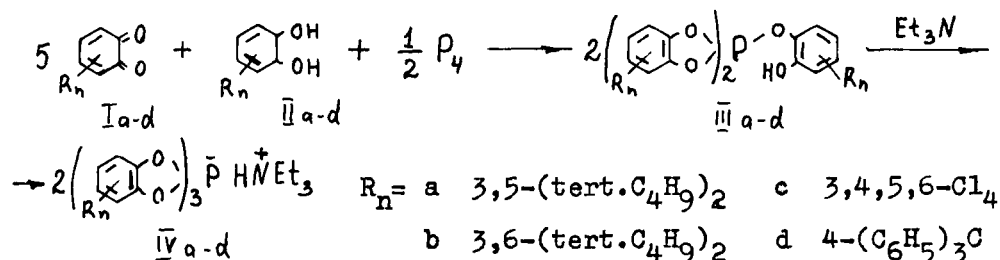
Synthesis of Hexa- and Pentacoordinated Phosphorus Compounds from White Phosphorus

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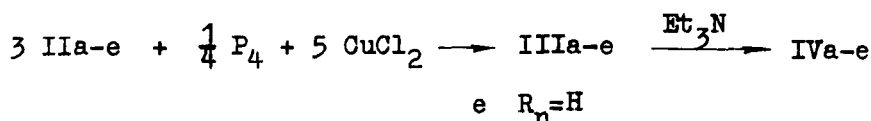
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A new method is developed for the synthesis of phosphoranes (IIIa-d) and phosphorates (IVa-d) starting from substituted o-benzoquinones (Ia-d), catechols (IIa-d) and white phosphorus.



It is determined that this reaction is accelerated in the presence of anhydrous $\text{Cu}(\text{OAc})_2$ or CuCl_2 , and the yields of the products are increased (to 50-90%).

Another method is proposed for synthesis of phosphoranes (IIIa-e) and phosphorates (IVa-e) starting from substituted catechols (IIa-d) or catechol (IIe), white phosphorus and anhydrous CuCl_2 (yields 35-60%).



The structures of IIIa-e and IVa-e were established by chemical and physical methods. The IIIB structure was determined by x-ray crystallography.