

## Thermal stability of primary and secondary phosphine oxides formed as a reaction of phosphine oxide with ketones

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### Abstract

© 2016 Taylor & Francis Group, LLC. We present the study of reactivity of electrochemically generated in situ from white phosphorus P<sub>4</sub> phosphine oxide H<sub>3</sub>PO toward various ketones (acetone, methylethylketone, methyl-n-propylketone). This interaction was found to give a selective formation of mono- and bis-( $\alpha$ -oxyalkyl)phosphine oxides RR'C(OH)P(O)H<sub>2</sub> (1) and (RR'C(OH))<sub>2</sub>P(O)H (2) where R = Me; R' = Me, Et, n-Pr. Thermal properties of the formed primary and secondary phosphine oxides have been studied and quantum chemical calculations of thermodynamic stability of these compounds were performed.

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### Keywords

DFT calculations, Electrochemistry, ketones, phosphine oxide, white phosphorus