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Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

Synthesis of Mixed Dialkylphosphates by PTC

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Online publication date: 27 October 2010

To cite this Article Ilia, Gheorghe, Iliescu, Smaranda, Dehelean, Gheorghe, Popa, Adriana, Pacureanu, Liliana, Macarie, Lavinia and Pascariu, Aurelia(2002) 'Synthesis of Mixed Dialkylphosphates by PTC', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 8, 2049 – 2050

To link to this Article: DOI: 10.1080/10426500213344

URL: <http://dx.doi.org/10.1080/10426500213344>

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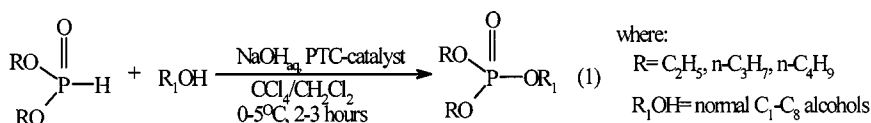
SYNTHESIS OF MIXED DIALKYLPHOSPHATES BY PTC

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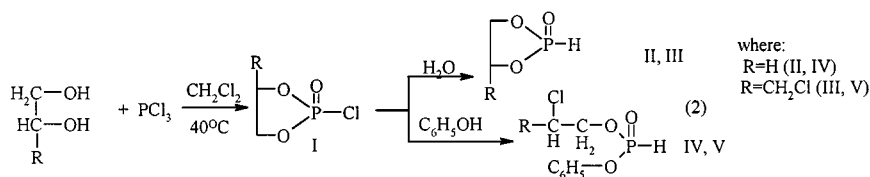
(Received July 29, 2001; accepted December 25, 2001)

Mixed dialkylphosphates were obtained in good yields (40–80%) in Phase Transfer Catalysis (PTC) starting from different dialkylphosphites and aliphatic alcohols (1).



SCHEME 1

Using the same method were synthesized mixed phosphates starting from phosphites II, III, IV, V (2).



SCHEME 2

The reaction conditions were optimized in order to obtain good yields in phosphites II, III, IV, V and phosphates, respectively. All compounds were analyzed by IR, P^{31} -RMN, and gas chromatography.

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The best results were obtained when was used 50% NaOH_{aq}, reaction temperature 10°C, reaction time 3 h and molar ratio phosphite: alcohol = 1.25:1.

P³¹ NMR spectra, performed with 300 MHz Varian Gemini spectrometer, showed chemical shifts value $\delta = 0.8\text{--}1.0$ ppm (standard H₃PO₄ 85%).

Mixed phosphates obtained from C1–C4 were chromatographically pure.