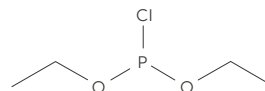


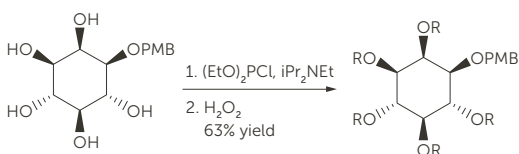
# Diethyl chlorophosphite

Product number: 135 | Alternative name:  $(\text{EtO})_2\text{P}\text{Cl}$  | CAS number: 589-57-1 |  $\text{C}_4\text{H}_{10}\text{ClO}_2\text{P}$  | Molecular weight: 156.55

Diethyl chlorophosphite is a corrosive and moisture-sensitive colorless liquid (b.p.  $56^\circ - 57^\circ\text{C}$  ( $132.8^\circ - 134.6^\circ\text{F}$ )/30 mm).  $(\text{EtO})_2\text{P}\text{Cl}$  has been used in phosphorylation of hydroxy and amine groups, addition reactions, and rearrangements reactions.



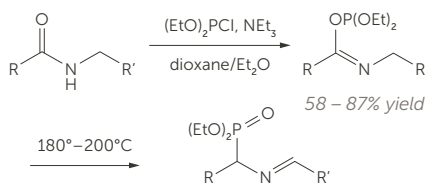
## GLOBAL PHOSPHORYLATION OF CARBOHYDRATES<sup>1</sup>



PMB = 4-methoxybenzyl

$R = \text{P}(\text{O})(\text{OEt})_2$

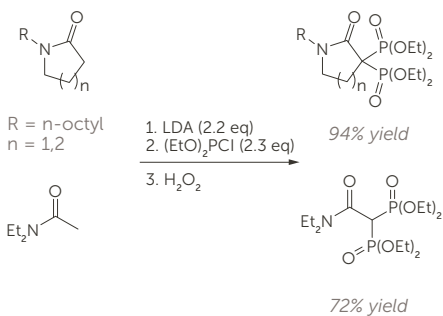
## UNIQUE PHOSPHORYLATION OF AMIDES<sup>5,6</sup>



$R = \text{Me, Et, t-Bu, Ph}$   
 $R' = \text{Ph, CO}_2\text{Me, CO}_2\text{Et}$

~63% yield

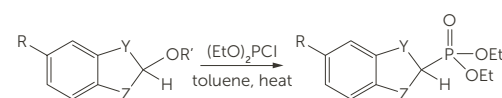
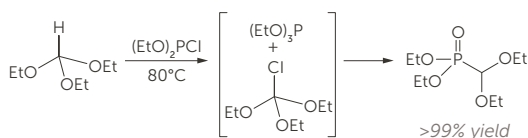
## PREPARATION OF $\alpha,\alpha$ -BISPHOSPHONATES VIA ENOLATE CHEMISTRY<sup>2</sup>



$R = n\text{-octyl}$   
 $n = 1, 2$

72% yield

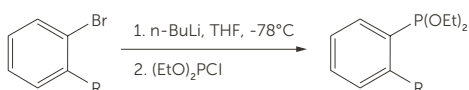
## REACTIONS WITH ORTHO ESTERS AND THIOESTERS<sup>7,8</sup>



$Y, Z = \text{O, S}$   
 $R = \text{H, OMe}$   
 $R' = \text{Et, CH}_2\text{CH}_2\text{CHMe}_2$

48 - 72% yield

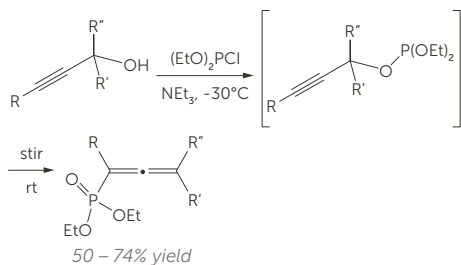
## P-C BOND FORMATION BY QUENCH OF LITHIUM ARYL ANIONS<sup>3,4</sup>



$R = \text{dialkyl amine, diaryl phosphine}$

72% yield

## HORNER-MARK [2,3]-SIGMATROPIC REARRANGEMENTS<sup>9-11</sup>



R = H,  $-(CH_2)_nOC(OEt)HMe$  ( $n=1,2$ ),  $C_4H_9$ ,  $C_5H_{11}$   
R' = H, Me  
R'' =  $CH_2Cl$ , 4-(2,2-dimethyl-[1,3]-dioxolane)

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