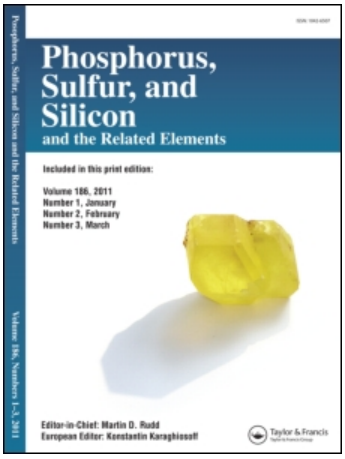

Phosphorus, Sulfur, and Silicon and the Related Elements

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N-Phosphorylated Lactams

Andre B. Ouryupin[a]; Ivan A. Rakhov[a]; Vera A. Kolesova[a]; Pawl V. Petrovskii[a]; Tatyana A. Mastryukova[a]; Martin I. Kabachnik[a]

[a] A. N. Nesmeyanov Institute of Organo-Element compounds, Russian Academy of sciences, Moscow

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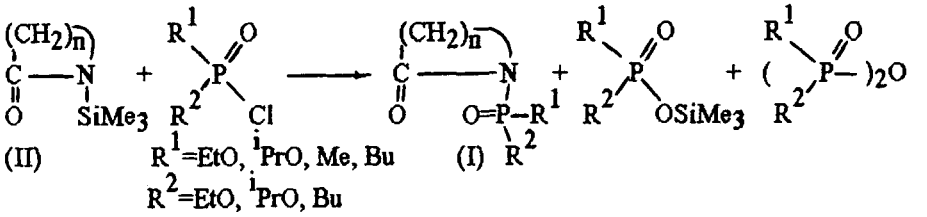
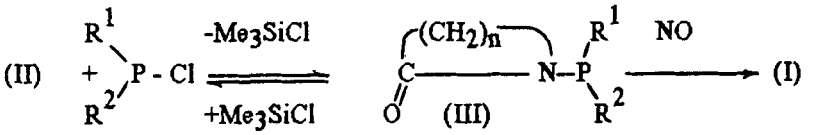
N-PHOSPHORYLATED LACTAMS

ANDREI B. OURYUPIN, IVAN A. RAKHOV, VERA A. KOLESOVA, PAVEL V. PETROVSKII, TATYANA A. MASTRYUKOVA, MARTIN I. KABACHNIK
A.N.Nesmeyanov Institute of Organo-Element compounds, Russian Academy of sciences, 117813, Moscow, Vavilova 28

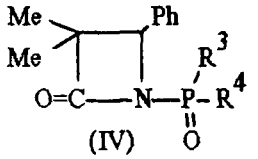
The synthesis of N-phosphorylated lactams (I) has been developed utilizing reaction of corresponding silyllactams (II; n= 3,4,5) with phosphorus acids chlorides. When phosphorylated, silyllactams behave like ambident systems, the substitution at O or N atoms being assumed.



P^{III} acids chlorides are reacted with (II) regioselectively, so that the products of N-phosphorylation - P^{III} amides (III) - could be obtained in good yields. Their oxidation affords phosphoryllactams (I). The reaction of (III) formation was shown to be reversible.



The same approach was applied to obtain thiophosphoryl analogs of (I) as well as N-phosphorylated β-lactams (IV).



$R^3 = R^4 = EtO$; $R^3,R^4 = -O(CH_2)_3O-$