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# REACTION OF SILICON TETRACHLORIDE WITH TERTIARY BUTYL ACETATE . A NOVEL SYNTHESIS OF SILICON TETRAACETATE

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Recently there has been an extraordinary interest in the acetoxy derivatives of silicon[1,2] due to their uses in the synthesis of inorganic polymers[3] of the type $(-M-O-Si-O-)_n$. These acetoxy derivatives have been synthesised by treating the corresponding chloride derivative with a number of reagents viz., (i) acetic acid or anhydride[4], (ii) acetic acid using pyridine as proton acceptor[5], (iii) anhydrous potassium acetate[6]. All the

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above methods suffer from either the need to avoid decomposition of intermediate products[7] or require filtration etc. which tend to reduce the yield of highly hydrolysable derivatives.

Fine white crystals of silicon tetraacetate are obtained in almost quantitative yield (> 99%) by a straightforward reaction between silicon tetrachloride and excess tertiary butyl acetate at the room temperature. Analysis:- Calc. for $Si(OOC.CH_3)_4$; Si, 10.6; $OOC.CH_3$, 89.4%. Found: Si, 10.8; $OOC.CH_3$, 89.2%.

In view of the extensive work on the acid hydrolysis of esters, the mechanism of the above reaction in which silicon tetrachloride may be taken to be a Lewis acid is under investigation. Already a number of observations appear to be of great interest. The reaction of dimethyl dichlorosilane with tertiary butyl acetate is slow and requires refluxing for completion and almost quantitative yield of dimethyl diacetoxysilane is obtained. The reaction appears to be slower in the case of trimethyl chlorosilane whereas it does not proceed to complete substitution of chlorine in diphenyl dichlorosilane.

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