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FLUOROPHOSPHAALKENES – PREPARATION AND REACTIVITY

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As a novel route to perfluorophosphaalkenes the elimination of trimethylfluorostannane according to eq. (1) has been thoroughly investigated.

$$Me_3SnP(R_F)_2 \xrightarrow{\Delta} Me_3SnF + R_FP = C(F)R_F' \qquad (1)$$

Compounds I ($R_F = CF_3$, $R_F' = F$) and II ($R_F = C_2F_5$, $R_F' = CF_3$) studied so far are surprisingly stable in inert solvents at low temperatures, so that their reactivity can be investigated quite easily. The following types of reaction, results of which will be presented and discussed, have been studied in some detail:

(i) Self addition to yield dimers and trimers,

(ii) Cycloaddition reactions of the Diels-Alder type with a series of dienes,

(iii) Addition of proton acidic compounds HX (X = OR, NMe_2, PMe_2, $AsMe_2$, $HM'Me_3$, Br) to the unsaturated P = C systems.

1 J. Grobe and D. Le Van, Angew. Chem., Int. Ed. Engl., 23, (1984) 710.

2 M. Binnewies, J. Grobe and D. Le Van, Phosphorus and Sulfur, 21, (1985) 349.