I53

IODINE FLUORIDES AND THEIR ORGANO DERIVATIVES

W. Breuer, H. J. Frohn, S. Görg and R. Nielinger

Fachgebiet Anorganische Chemie, University of Duisburg, Lotharstrasse 65,
D-4100 Duisburg 1 (F.R.G.)

Principally there are two ways to organo derivatives of iodine fluorides

a) the oxidative fluorination of alkyl- or aryl-iodides

b) the substitution of fluoride in iodine fluorides.

Arylbromine(V)tetrafluorides react with alkyl- or aryliodides in organic solvents. For this reaction we found relations between the basicity of the medium and the kind of fluorination products: RIF_2 *and* RIF_4 *or other oxidation products. The conversion of the fluorination reaction strongly depended on medium basicity.*

$$R'BrF_4 + RI \longrightarrow RIF_2 + RIF_4 + RI + R'Br$$

In contrast to alkyliodides C_6F_5I *was not oxidatively fluorinated when* BF_3 *was present, but electrophilically arylated under formation of* $[(C_6F_5)_2I]^+$. *The same product was isolated when* $i\text{-}C_3F_7IF_2$ *reacted with* $Cd(C_6F_5)_2$ *in presence of* BF_3.

Using nucleophilic substitution-reactions IF_5 *and* IOF_3 *could be reacted to the corresponding polyvalent aryl-iodine compounds.*

Presupposing correct Lewis acidity of the reaction medium IF_5 *itself can be used as specific oxidative fluorinating reagent e.g. for the preparation of acid fluorides.*