

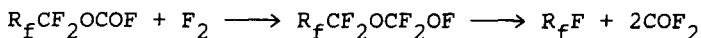
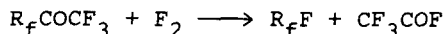
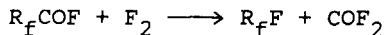
PHOTOCHEMICAL FLUORINATION OF FUNCTIONAL DERIVATIVES
OF PERFLUOROPOLYETHERS

G. Marchionni, A. Staccione and G. Gregorio
Montefluos, Research Centre, Bollate (Italy)

One of the main technological problems in the manufacturing of inert fluorinated oils is the final removal of the carbonylic and carboxylic functional groups from the products. The intermediate products of the industrial processes are acidic mixtures of perfluoropolyethers bearing at one end of the chain a ketone or an acyl fluoride group. To obtain a neutral product a thermal treatment is required in the presence of elemental fluorine [1, 2, 3].

We recently developed a neutralization process, comprising a photochemical fluorination which is much milder and easier to control than the thermal process [4, 5].

During this work many aspects were delineated for the reactions between fluorine and perfluorocarboxylic acids, acyl fluorides or ketones. Also fluoroformates, $R_f\text{OCOF}$, showed an interesting reaction sequence.



The stability of the perfluorinated polyether chains makes the fluorination extremely selective at the carbonylic position and consequently, the product distributions are simple and the reaction paths easy to understand.

- 1 D. Sianesi, A. Pasetti, R. Fontanelli, G.C. Bernardi, G. Caporiccio, *La Chimica e l'Industria*, **55**, 208 (1973).
- 2 D. Sianesi, A. Pasetti, C. Corti, U.S. Pat. 3 442 942 (1969).
- 3 D.S. Milian, U.S. Pat. 3 242 218 (1966).
- 4 G. Marchionni, G.T. Viola, Eur. Pat. 193 028 (1986).
- 5 G. Marchionni, A. Staccione, Eur. Pat. 308 905 (1988).