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ELECTROPHILIC PERFLUOROALKYLATION OF ALKENES

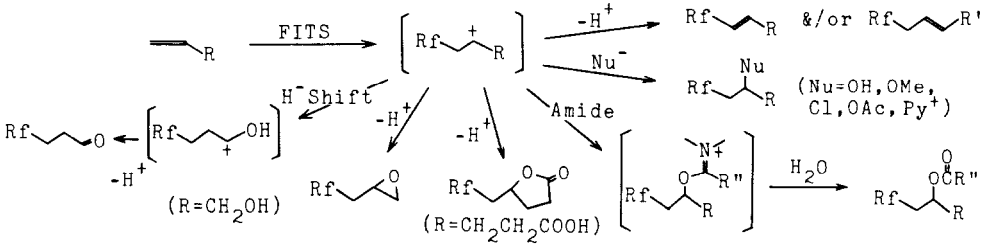
Teruo Umemoto* and Shin-ichi Nakayama

Sagami Chemical Research Center, Nishi-Ohnuma 4-4-1, Sagamihara, Kanagawa 229 (Japan)

No electrophilic perfluoroalkylation of alkenes has been reported. We synthesized (perfluoroalkyl)phenyliodonium trifluoromethanesulfonates(FITS) as reactive electrophilic perfluoroalkylating agents by treatment of bis-(trifluoroacetoxy)iodoperfluoroalkanes with benzene and trifluoromethanesulfonic acid.

$$RfI \longrightarrow RfI(OCOCF_3)_2 \longrightarrow RfI(Ph)OSO_2CF_3 \text{ ; FITS}$$

FITS could smoothly undergo electrophilic displacement or addition reactions on alkenes.



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SYNTHESIS OF HEXAFLUOROISOBUTENE FROM THE METHANOL ADDUCT OF OCTAFLUOROISOBUTENE

S. Takamatsu* and S. Misaki

Daikin Kogyo Co., Ltd., Chemical Div., 700-1 Hitotsuya, Settsu, Osaka 564 (Japan)

Hexafluoroisobutene is an useful monomer for the synthesis of fluoropolymers. During the study of making the compound, we found potassium hydroxide acted as the dehydrating reagent upon hexafluoroisobutanol with mild conditions to give the monomer.
The dehydrate reaction could easily carry out using powdered potassium hydroxide in the solvent or without solvent at moderate reaction temperatures. Hexafluoroisobutanol itself was synthesized with two steps from the methanol adduct of octafluoroisobutene.

Hexafluoroisobutene was also made by the following route;

$$(CF_3)_2CHCF_2OCH_3 \longrightarrow (CF_3)_2C{=}CFOCH_3 \longrightarrow (CF_3)_2CHCH_2OCH_3 \longrightarrow$$

$$(CF_3)_2CHCH_2OSO_2OCH_3 \longrightarrow (CF_3)_2C{=}CH_2$$

Details will be presented.