

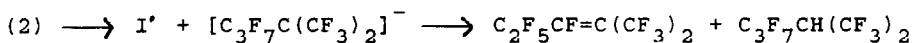
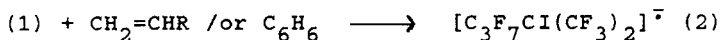
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NEW APPROACH TO PERFLUOROALKYL HALIDES CHEMISTRY.  
 INTERACTION OF  $R_F X$  WITH UNSATURATED HYDROCARBONS AS  
 A SET-PROCESS

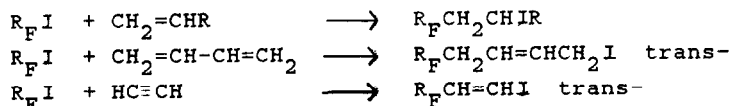
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The sharp increase of electron affinity and the corresponding rise of oxidative properties of perfluoroalkyl halides as compared with unfluorinated analogues have been demonstrated by means of polarography and quantum-chemical calculations. Tertiary perfluoroalkyl iodides possess a rather strong oxidative ability associated with a very high speed of intermediate anion radical dissociation. F-tret.hexyl iodide (1) does not react with unsaturated hydrocarbons at  $80^\circ$ . However in the polar solvents (DMF), single electron transfer (SET) occurs at the interaction of (1) with  $C_6H_6$  or with hexene and F-alkene and/or monohydroalkane are produced.



In less polar solvents (EtOAc,  $80^\circ$ ) iodide (1) readily adds to alkenes, butadiene and acetylene.



The relatively mild conditions for these addition reactions allow to propose the realization of the SET-process in the case of non-polar solvents with the formation of the intermediate contact ion-radical pair. In polar solvents SET-process takes place through the distance with the formation of completely separated radical ions.