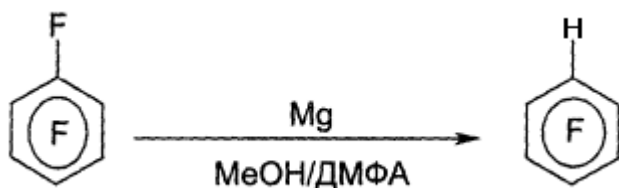


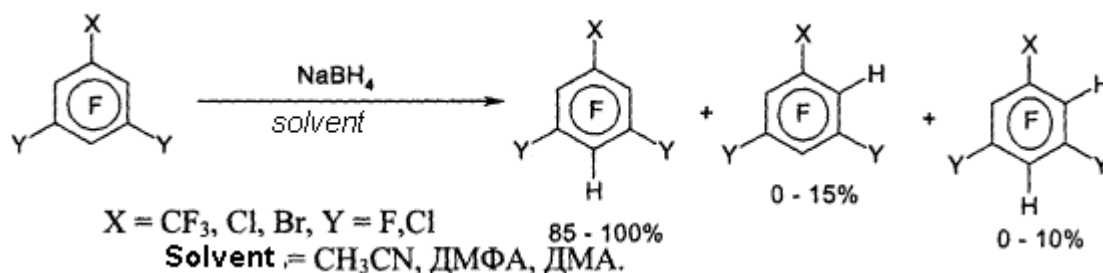
HYDROGENOLYSIS OF C-HALOGEN BOND IN POLYFLUOROAROMATIC COMPOUNDS

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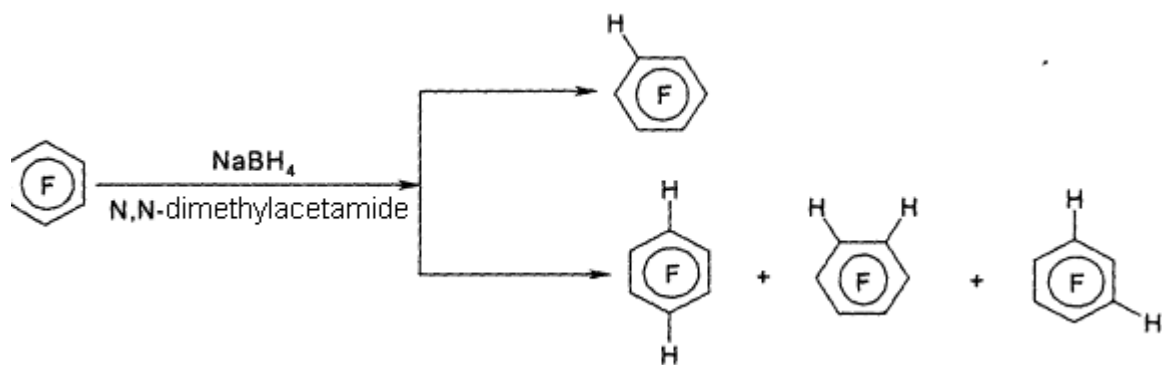
Well-known methods of hydrogenolysis of C-F and C-Cl bonds in polyfluoroaromatic compounds are based on the reduction by LiAlH_4 or by hydrogen in the presence of the noble metals [1,2]. Major preparative interest represents the reduction of C-Cl and C-Br bonds in pentafluorochlorobenzenes and pentafluorobromobenzene by Zn/Cu couple in the hydrous N,N-DMF [3]. It was found that with the use of Mg in methanol with addition of N,N-DMF it becomes possible to reduce C-F bond in hexafluorobenzene resulting in a yield up to 60 %.



As a continuation of these research it was found that NaBH_4 in the polar solvents may have wide application for the hydrogenolysis of C-F bond in polyfluoroaromatic compounds. Thus reduction of polyhalotoluenes and benzenes results in the mixture of the products with the total yield up to 90% with the para-isomer prevalence. Ratio of the products depends on the chosen solvent and on the reaction conditions.



Isomeric tetrafluorobenzenes along with pentafluorobenzene are formed in the reaction of hexafluorobenzene with NaBH_4 .



- 1) T-Schach, T. Papenfuhs (US 5.498.807 (Cl.507.127; CO 7 25/13), 1996)
- 2) J. Res.; NBS, 6 (1959) N 3, 119-122) R.E. Florin, W.J.Pummer, L. A. Wall.
- 3) Organic Chemistry, 1994, 30 (8) 1271-1275, V. E. Platonov, V. L. Krasnov.