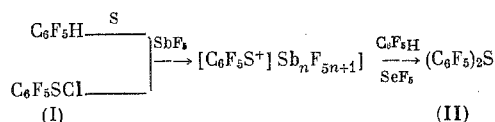


REACTION OF POLYFLUOROAROMATIC COMPOUNDS WITH SULFUR IN THE PRESENCE OF ANTIMONY PENTAFLUORIDE

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We had shown that the reaction of pentafluorobenzene with elemental sulfur in the presence of SbF_5 gives bis(pentafluorophenyl)sulfide (I) in quantitative yield. The reaction probably proceeds via the formation of the reaction products of sulfur with SbF_5 [1, 2], and subsequent electrophilic attack of the $\text{C}_6\text{F}_5\text{H}$. The pentafluorophenylsulfenium cation is apparently generated here, which then reacts with the $\text{C}_6\text{F}_5\text{H}$ to give compound (I). This assumption is supported by the formation of (I) when pentafluorophenylsulfenyl chloride (II) is reacted with $\text{C}_6\text{F}_5\text{H}$ in the presence of SbF_5



It is obvious that other not completely fluorinated aromatic compounds, which fail to decompose under the influence of SbF_5 , can also enter into the same reaction.

Compound (I) is also obtained in high yield by the reaction of $\text{C}_6\text{F}_5\text{H}$ with SCl_2 and S_2Cl_2 in the presence of SbF_5 . To 1 g of sulfur in 50 ml of SbF_5 at 20°C was added 10 g of $\text{C}_6\text{F}_5\text{H}$ (the temperature of the mixture rose up to 60°). The mixture was kept at 60° for 1 h and then poured over ice. The precipitate was filtered and dried. We obtained 10.6 g (97%) of (I), mp $84-85^\circ$; cf. [3]. The mixed melting point with an authentic specimen was not depressed. The IR spectrum of (I) is identical with the spectrum of the authentic product.

In a similar manner, from 1.5 g of $\text{C}_6\text{F}_5\text{H}$, 1.6 g of (II) and 20 g of SbF_5 was obtained compound (I), mp $84-85^\circ$; yield 93%.

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