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PREPARATION AND PROPERTIES OF FLUOROCARBONYLSULFENYL COMPOUNDS

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Starting from FC(O)SCl and $(CH_3)_3SiX$ (X=Br, I, NSO, N_3), the corresponding FC(O)SX compounds have been prepared. When $FC(O)SN_3$ is heated in the presence of hexachlorocyclopentadiene $FC(O)SN{=}C_5Cl_6$ is formed proving the existence of FC(O)SN as an intermediate.

FC(O)SBr, FC(O)SI and FC(O)SNSO show at room temperature an equilibrium of two conformers where in all three cases the trans form (with respect to the halogens, NSO and F) is the most stable one.

Reactions of FC(O)SCl with CH_3SH, H_2S or $LiCH_3$, respectively, provide $FC(O)SSCH_3$, FC(O)SSSC(O)F (together with FC(O)SSSSC(O)F and FC(O)SSSSSC(O)F as byproducts) and $FC(O)SCH_3$. The known $FC(O)SCH_3$ exists only in one conformeric structure at room temperature (trans with respect to F and CH_3). FC(O)SSSC(O)F was also prepared by UV irradiation of FC(O)SSC(O)F, and FC(O)SSSSC(O)F as well as FC(O)SSSSSC(O)F were also synthesized by condensation of FC(O)SCl with H_2S_2 or H_2S_3.

Derivatives of the type FC(O)SSC(O)X (X=Cl,Br) have been obtained by reacting FC(O)SSC(O)F with BCl_3 or BBr_3. FC(O)SS(O)Cl shows two conformers in equilibrium at room temperature with C_1 symmetry. Additional properties of these compounds will be presented.

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