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BIS-(2-CHLOROPOLYFLUOROALKYL)DISULFIDES. SYNTHESIS AND PROPERTIES

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Thermal reactions of polyfluoralkenes with disulfur dichloride lead to bis-(2-chloropolyfluoroalkyl)disulfides (I), which proved to be effective precursors of diverse fluorosulfurorganic compounds.

By present preparative syntheses of disulfides were developed out of trifluoromethylethylene, trifluoro-, tetrafluoro- and trifluorochloroethylenes, perfluoromethylvinyl ether, 2-hydropentafluoropropilene. Regularities of these reactions were revealed, the effects of different factors on addition regioselectivity were studied. Some disulfides (I) are converted into 2-chloropolyfluoralkylsulfonylchlorides out of which polyfluoralkenylsulfonyl halogenides are obtained (II). Under certain conditions disulfides (I) are converted into 2-chlopolyfluoroalkanesulfonyl chlorides that proved to be good precursors of fluorcontaining unsaturated sulfides (III), sulfoxides (IV) and sulfones (V). On the basis of unsaturated compounds (II)-(V) various polyfluoralkylsubstituted alicyclic, acyclic and heterocyclic sulfurorganic compounds were synthesized.

Highlyelectrophilic perfluorated unsaturated compounds such as hexafluorodimethylketene and oktafluoroisobutilene do not interact with disulfur dichloride in thermal processes. It was possible to perform these reactions under mild conditions using the effects of specific solvatation of reagents. Products of these reactions (disulfides and thiosulfenyl chlorides) also proved to be effective precursors of different fluorosulfurorganic compounds.