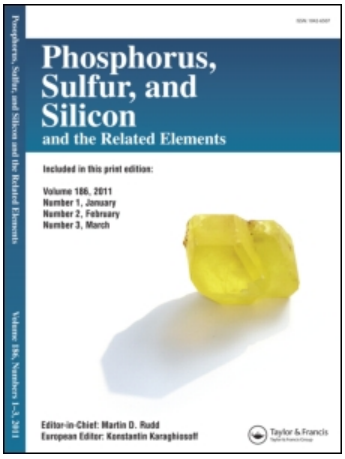

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STEREOCHEMISTRY OF THE ADDITION OF PENTAFLUOROTHIOPHENOL TO ALKENES AND ACETYLENES

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STEREOCHEMISTRY OF THE ADDITION OF PENTAFLUOROTHIOPHENOL TO ALKENES AND ACETYLENES

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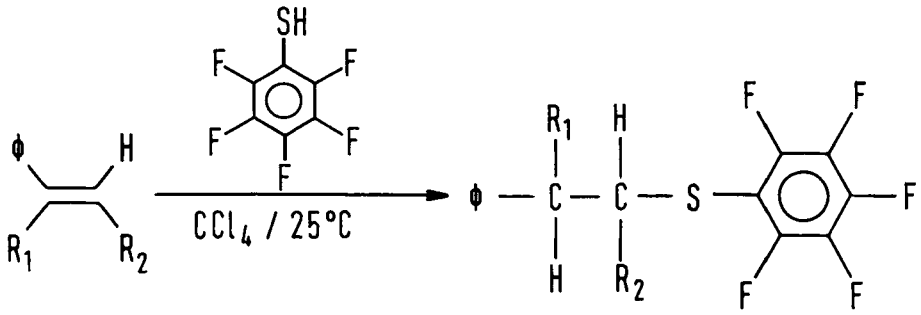
Leong and Peach (J. Fluorine Chem., 6, 145 (1975)) have shown that at room temperature pentafluorothiophenol readily reacted with 1–hexene and phenylacetylene forming adducts, the reactions following anti–Markovnik type regio-selectivity, and suggested a free radical mechanism.

In order to get some further information on the mechanism of the addition of pentafluorothiophenol at room temperature, we have studied its reactions with several phenyl substituted olefins. In all cases the entry of the C_6F_5S group followed anti–Markovnik type regioselectivity. Further, we have studied the stereochemistry of addition of pentafluorothiophenol to phenyl substituted cycloalkenes. The stereochemistry of the addition depends on ring magnitude. The stereochemistry of the addition to substituted phenylacetylenes also depends on the magnitude of the substituent. The stereochemistry and the mechanism of the addition of pentafluorothiophenol to alkenes and acetylenes will be discussed.



$R_1 = R_2 = H$

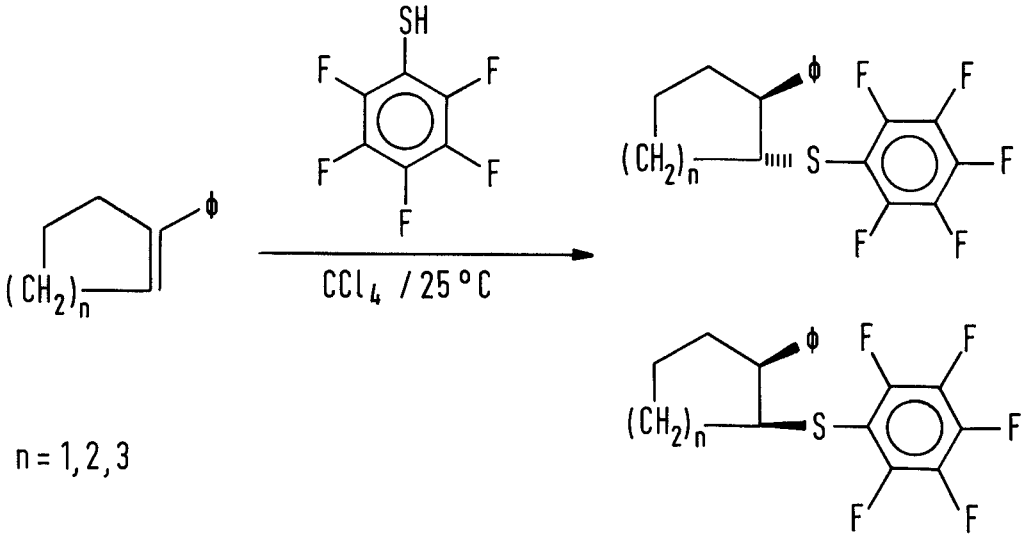
$R_1 = CH_3$, $R_2 = H$

$R_1 = H$, $R_2 = CH_3$

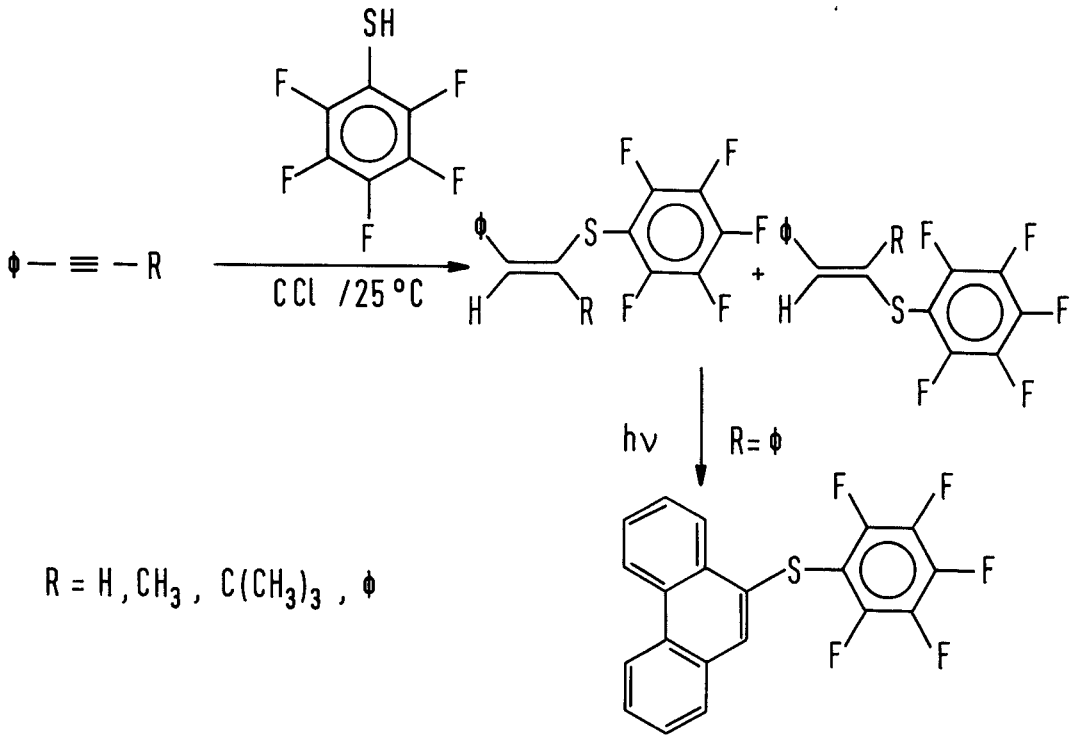
$R_1 = \phi$, $R_2 = H$

$R_1 = \phi$, $R_2 = CH_3$

$R_1 = \phi$, $R_2 = F$



n = 1, 2, 3



R = H, CH_3, $C(CH_3)_3$, ϕ