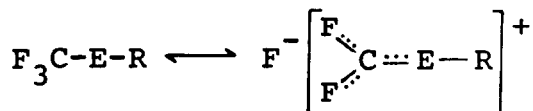


MULTINUCLEAR NMR STUDIES ON CF₃ SUBSTITUTED SULFUR, SELENIUM AND TELLURIUM COMPOUNDS

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A systematic investigation of thirty-four CF₃Se(II, IV) and eight CF₃Te(II, IV) compounds by ¹³C, ¹⁹F, ⁷⁷Se and ¹²⁵Te NMR spectroscopy resulted in some general features for chemical shifts and coupling constants which agree with the trends of reported ¹⁹F and new ¹³C NMR data of CF₃S(II, IV) compounds. Moreover, the NMR spectra of molecules of the type E=CXY (E = chalcogen, X, Y = halogen) and substances containing a C=Se double bond have been studied. From the comparison of these NMR data with those of CF₃ substituted chalcogen compounds, a partial double bond character of the carbon-fluorine and carbon-chalcogen bond in CF₃ substituted chalcogen compounds can be derived:



TRIFLUORMETHYLISONITRILE CF₃NC, VERSATILE LIGAND IN METAL ORGANIC CHEMISTRY

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Although isonitriles and their transition metal complexes have been discovered about one century ago, the first synthesis of Trifluoro-methylisonitrile has been published in 1967 by Makarov et al. But except for the \leftarrow -addition of bromine no further reactions have been investigated.

The high yield synthesis of CF₃NC will be described in detail. Preparation and structural investigations on the new complexes (CO)₅CrCNCF₃, (CO)₅WCNCF₃, Ni(CNCF₃)₄ are given. Especially the vibrational spectra of (CO)₅Cr(CNCF₃) and (CO)₅WCNCF₃ differ very much from those of the nonfluorinated species. They are nearly identical to those of the hexacarbonyls and thus give a strong hint that trifluoromethylisonitrile as a ligand