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ACID-BASE INTERACTIONS OF DITRIFLUORACETIMIDE

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The high acidity of ditrifluoroacetimide $(CF_3CO)_2NH$ (I) accounts for its ability to form stable adducts with triethylamine (TEA), pyridine (Py) and dimethylaniline (DMA). The composition and structure of ionized complexes $[(CF_3CO)_2N]^- \text{HN}^+ \leq$ obtained in dry ethers were determined by IR, 1H and ^{13}C spectroscopy, mass spectrometry and element analysis.

The medium effect on the structure of the adducts formed was studied on the basis of $\nu_{as}(C=O)$ and $\nu_s(C=O)$ band positions ($1700-1850\text{ cm}^{-1}$) and the band intensity ratio in the IR spectra. The isolated ionic complexes of (I) with TEA, Py and DMA show a trans orientation of the C=O groups with respect to the substituent at the nitrogen atom. In solutions of CH_2Cl_2 , CH_3CN and DMSO the products of the reaction of (I) with bases are present as both ionized complexes of (I) presumably in the trans-trans form and H-complexes displaying mainly a cis-trans arrangement of the C=O groups. The equilibrium is shifted toward the formation of ionized structures as the electron-releasing ability of bases increases: $DMSO < DMA < Py < TEA$.