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TRIFLUOROMETHYLISOCYANIDE CF_3NC , A SOURCE FOR N-TRIFLUOROMETHYL-CARBIMIDOYL-COMPOUNDS CF_3NCXY

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The new high yield synthesis of trifluoromethylisocyanide by reductive elimination of halogen from N-trifluoromethylcarbimido-yl-dihalogenides allows the study of the structure and reactivity of this reactive compound. In the reaction of trifluoromethylisocyanide with hydrogen halides, N-trifluoromethylcarbimido-yl-halides are formed. From NMR-data we can conclude that both possible isomers are formed, but only one is the major product. In the case of the HF addition the amine $\text{CF}_3\text{NHC}_2\text{H}_5$ is formed as a by-product. This amine undergoes HF elimination on treatment with anhydrous KF forming CF_3NCHF . The N-trifluoromethyl-carbimido-yl-halides dimerise slowly at room temperature forming formamidines of the type $\text{CF}_3\text{N}=\text{C} \begin{matrix} \text{H} \\ \diagdown \\ \text{N}(\text{CF}_3)(\text{CX}_2\text{H}) \end{matrix}$. In the α -addition of SF_5Br to CF_3NC only one isomer is formed.