I_{37}

TRIFLUORMETHYLISOCYANIDE, REACTIVITY AND LIGAND BEHAVIOUR

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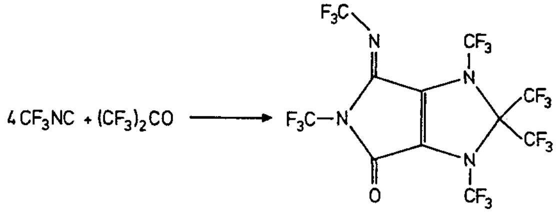
Spectroscopic data of $Cp^*Mn(CO)_2(CNCF_3)$ and $Cp^*Mn(CNCF_3)_3$ - compared to $Cp^*Mn(CO)_2L$ (L=CO, CS, $CNCH_3$)- show that the trifluoromethylisocyanide ligand is an extremely strong π-accepting ligand, which stabilizes low oxidation states of the metal atom. Nevertheless $Cp^*Co(CNCF_3)_2$ can be oxidized by iodine to yield $Cp^*Co(CNCF_3)I_2 \cdot I_2$, which according to the crystal structure analyses contains I_4-units bridging the $Cp^*Co(CNCF_3)$-fragments.

In the reaction of CF_3NC with hexafluoroacetone a tetrahydropyrrolo-[3,4-d]-imidazole derivative is formed instead of the expected iminodioxolane.



The reaction of CF_3NC with CF_3COOH offers an excellent method for preparing the hitherto unknown N-trifluoromethylformamide, which is unexpectedly stable compared to trifluoromethylamine.

$$CF_3NC \xrightarrow{CF_3COOH(excess)} CF_3\text{-}NH\text{-}CHO + (CF_3CO)_2O$$