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THE STABILIZATION OF PENTAFLUOROPHENYLISOCYANIDE ON A TRANSITION METAL COMPLEX

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Pentafluorophenylisocyanide was synthesized for the first time in 1975 by Haszeldine et al. An alternative route to this compound is the dehalogenation of N-pentafluorophenylcarbimidoyl-dichloride with magnesium. Ph_F-N=CCl_2 is prepared by high temperature chlorination of pentafluorophenyl-dimethylamine. The instability and low volatility of the isocyanide allows no further characterisation. Nevertheless it is possible to stabilize this compound as a ligand on a transition metal complex. $Na(FeCp(CO)_2)$ reacts with $Ph_FN{=}CCl_2$ forming the pentafluorophenylisocyanide complexes $Fe_2Cp_2(CO)_3CNPh_F$ and $Fe_2Cp_2(CO)_2(CNPh_F)_2$. In this reaction by-products are also formed where the fluorine at the para position of the aromatic ring is substituted either by a proton or $FeCp(CO)_2$. These can be separated by column chromatography.