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## FLUOROMETHYLIDINE COMPLEXES

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$(\mu_3\text{-CF})[\text{Co}(\text{CO})_3]_3$ , its derivatives, and the hetero-clusters obtainable there from by metal exchange, where hitherto the only fluoromethylidene complexes known. The 18-electron rule and the Wade rules predict that a further CF-ligand can be incorporated below the metal triangle, if one replaces cobalt by iron.

Reaction of  $\text{Fe}(\text{CO})_5$  or  $\text{Fe}_2(\text{CO})_9$  with  $\text{CFBr}_3$  leads to formation of  $\text{Fe}_3(\text{CO})_9(\mu_3\text{-CF})_2$ , which is a bis(fluoromethylidene) complex.

The extreme downfield shift of the  $^{13}\text{C}$ -NMR resonance of the carbyne carbon atom ( $\delta = 365.8$ ,  $^1J_{\text{CF}} = 452$  Hz) and the downfield shift of the  $^{19}\text{F}$ -NMR resonance ( $\delta = 69.5$  ppm) rule out the presence of the isomeric difluoro-acetylene complex.

$\text{Fe}_3(\text{CO})_9(\mu_3\text{-CF})_2$  reacts with phosphanes and phosphites by replacement of one, two or three carbonyl ligand.