

Sulfur-hydrogen bond activation of thiols by the fragment CpFe(dppe)+: Cyclopentadienyl iron(III) thiolate complexes

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Oxidative addition of thiols RSH, R = CH₃, CH₂CH₂CH₃, CH₂C₆H₅, C(CH₃)₃ and C₆H₄Br, by the complex [CpFe(dppe)]¹ afforded the oxidized thiolate complexes [CpFe(dppe)-SR]PF₆. The reaction of [CpFe(dppe)]¹ with HSC₆H₄NH₂ produces the diamagnetic [CpFe(dppe)HSC₆H₄NH₂]PF₆ instead of the expected thiolate product. The reaction of the dithiol HS(CH₂)₄SH with the same iron fragment, gives the binuclear complex [CpFe(dppe)-S(CH₂)₂S-CpFe(dppe)][PF₆]². The formation of the thiol-containing complexes as intermediates in the activation of the S - H bonds is discussed.

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