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Preliminary communication

π-Cyclopentadienyls of nickel(II)
VIII. The preparation and properties of an N-bonded thiatriazole organonickel compound

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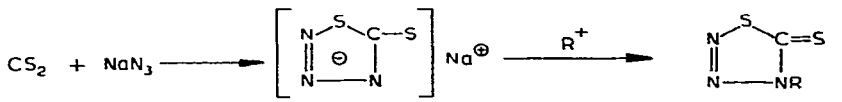
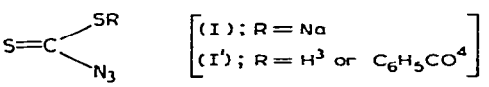
Lieber[1] has postulated that the reaction product of carbon disulfide with azide ion, previously designated as sodium azidodithiocarbonate (I)[2], really involved the 1,2,3,4-thiatriazole ring system (II). Accordingly the compounds derived from (II) must now be thought of in terms of structure (II′) rather than (I′).

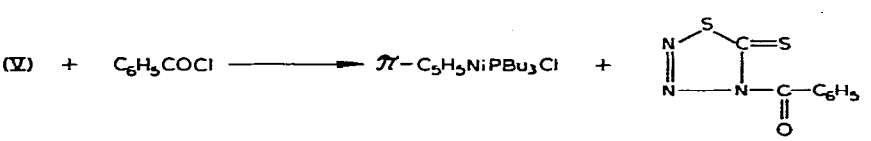


(II) (II′) (R=H or C_6H_5CO)



We describe below the preparation and properties of a new N-bonded 1,2,3,4-thiatriazole organonickel compound (V).

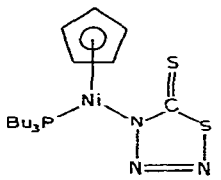
After standing for 24 h at room temperature a mixture of carbon disulfide and $[\pi\text{-}C_5H_5Ni(PBu_3)_2]^+N_3^-$ [5] gave brown crystals which had the molecular formula $\pi\text{-}C_5H_5NiPBu_3CS_2N_3$, (V), m.p. 80.5~81.5° (dec.) (Found; C, 48.55; H, 7.31; N, 10.01. $C_{18}H_{32}N_3NiPS_2$ calcd.: C, 48.68; H, 7.21; N, 9.47%). The product reacted with benzoyl chloride in acetone at room temperature to give 4-benzoyl-1,2,3,4-thiatriazoline-5-thione[1] and $\pi\text{-}C_5H_5NiPBu_3\cdot Cl$.



Pyrolysis at about 80°, gave isothiocyanate nickel compound π-$C_5H_5NiPBu_3$-NCS[5], which is consistent with the observation that 4-benzoyl-1,2,3,4-thiatriazoline-5-thione gives benzoyl isothiocyanate on pyrolysis.

$$(V) \xrightarrow{\text{pyrolysis}} \pi\text{-}C_5H_5NiPBu_3NCS$$

From the above results, there seems little doubt that the compound (V) must be formulated as follows:



(V)

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