Studies of the reduction of the nickel(II) complex of 5,10,15,20-tetraphenyl-21-thiaporphyrin to form corresponding nickel(I) complexes.

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Streszczenie

The divalent nickel complex of 5,10,15,20-tetraphenyl-21-thiaporphyrinNin(STPP)Clundergoesone-electronreduction(£]j/2°=-0.23V)to give Ni'(STPP).The product of the chemical reduction was isolated and characterized.It react swith sulfurdioxide to give a paramagnetic five-coordinate Ni!-S02adduct and coordinate snitrogenous bases (amines,pyridines,imidazoles)to formre spectivefive-andsix-coordinatecomplexes.The nature of the reduced species and its adduct swasexamined by EPR spectroscopy. The ESR parameter sareuniqueforNi111locatedinafour-donormacrocyclicenvironment.Typicalvaluesoftheg-tensor components are asfollows:Ni'(STPP),g¡=2.109,g2=2.040,g3=2.030;Ni'(STPP)(S02),g¡=2.187,g2=2.087,g3=2.075;Ni'-(STPP)(1,2-Me2Im),g,=2.414,g2=2.247,g3=2.114;Ni'(STPP)(MeIm)2,g,=2.237,g2=2.198,g3=2.136. From the EPR spectra of Ni'(STPP) oriented in liquid-crystalnematicglasses,theout-of-planeg-tensor component was determined. Coordination of nitrogenous basess witched the direction of the principalaxis from the normal to the thiaporphyrin planetothein-planelocation. EPR parameters canbeused to determine the a xialligation of Ni(I)insynthetic and natural (F-430 protein-bound) systems.

Adres publiczny

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https://www.acs.org/content/acs/en.html