N-(Substituted phenylhydroxynaphthylaldiminate) nickel(II) complexes. A structural and vibrational study

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The crystal and molecular structure of bis-(N-phenyl-1-hydroxy-2-naphthylaldiminate) nickel(II) (1) have been determined by x-ray crystallography. The compound crystallizes in the triclinic space group P1, No. 2 with one molecule in the unit cell. The metal adopts a trans-planar tetracoordination geometry with N and O as electron donor atoms. The molecule is stepped with the planes of two naphthyl groups parallel, each one making a dihedral angle of 20.4° with the coordination plane. The infrared spectrum and a normal coordinate treatment, based on a simplified molecular model, are discussed and related to the crystal structure. The bands near 390 and 290 cm-1 have been assigned to the NiO and NiN stretching vibrations, respectively. The corresponding force constants were estimated to be 1.28 and 0.78 mdyn Å-1. The influence of variation of the nature of the Schiff base ligand on structure 1 has been studied by including in the vibrational analysis the bis-N-(Y-phenyl)-2-hydroxy-1-naph