Syntheses and Characterization of Two New Mixed-Ligand Bismuth(III) Complexes, Crystal Structure of $[Bi(phen)_2(NO_3)(NCS)_2(MeOH)]$

Ali Morsali

Department of Chemistry, School of Sciences, Tarbiat Modarres University,
P. O. Box 14155-4838, Tehran, Iran

Reprint requests to Dr. Ali Morsali. Fax: +98 21 8006544. E-mail: morsali_a@yahoo.com

Z. Naturforsch. **60b,** 389 – 392 (2005); received September 13, 2004

Complexes $[Bi(phen)_2(NO_3)(NCS)_2(MeOH)]$ and $[Bi(phen)_2(NO_3)_2(NCS)]$ have been synthesized and characterized by their IR spectra and elemental analyses. The structure of the $[Bi(phen)_2(NO_3)(NCS)_2(MeOH)]$ complex has been confirmed by X-ray crystallography. The Bi atoms are unsymmetrically eight-coordinated, N_6O_2. The arrangement of the ligands does not show a gap in the coordination geometry around the Bi(III) ion, indicating that its lone pair of electrons is not active. The thiocyanate ligands are coordinated to the bismuth atom *via* the nitrogen atom. There is π-π stacking interactions between the parallel aromatic rings belonging to adjacent chains.

Key words: Bismuth(III) Complexes, Crystal Structure, Mixed-Ligand Complexes, π-π Stacking