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Synthesis and Molecular Structure of $[Cd(phen)_2(NO_3)_2]$

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Abstract: In this research, Complex $[Cd(phen)_2(NO_3)_2]$ was synthesized and the structure was determined by single-crystal X-ray diffraction method. This complex was synthesized by using 1, 10 - Phenanthroline and each of complexes $[Cd(Meurea)_6](NO_3)_2$ and $[Cd(urea)_4(NO_3)_2]$ at 50-60°C. This complex crystallizes in triclinic crystal system, space group P(-1)(2) with two molecules in the unit cell. Lattice parameters of this compound are:

a= 9.6008(5)Å b= 9.6044(3)Å c= 13.4376(11)Å

α= 99.5624(4)° β= 99.5564(6)° γ= 105.0862(3)°

V= 1152.65(13)Å D_{calc}= 1.7221 mg/m^3

After structural determination, R and R_w constants decreased to 0.0772 and 0.0935 respectively. The Cd atom in this complex was eight-coordinated. In addition, Ir and XRD studies also carried out.

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