

# A 3D Chiral Hydrogen Bond Framework Based on Phenanthroline Hydrogen 4,5-Dichlorophthalate: Crystal Structure and Luminescent Properties

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A salt with the composition  $[\text{C}_{12}\text{H}_9\text{N}_2][\text{C}_8\text{H}_3\text{Cl}_2\text{O}_4]$  (**1**) with 4,5-dichlorophthalic acid and 1,10-phenanthroline (phen) has been synthesized and characterized by IR, UV spectroscopy, elemental analysis, and X-ray crystallography. Compound **1** represents a 3D chiral supramolecular framework containing monohelical chains ( $2_1$  axis) through multiform C–H $\cdots$ O, O–H $\cdots$ O, N–H $\cdots$ N intramolecular hydrogen bonds and C–H $\cdots$ O, N–H $\cdots$ O intermolecular hydrogen bonds. Otherwise, two types of face-to-face  $\pi\cdots\pi$  interactions between the aromatic rings are found in the solid state. The luminescent properties of compound **1** were investigated in the solid state at room temperature.

*Key words:* Hydrogen Bond, Crystalline Salt, Helix, Luminescence Properties