Assembling chiral salan-copper(II) complexes into a 2D-network with carboxylic acid functionalization

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 2410333
Author(s) Zhang, G.; Constable, E. C.; Housecroft , C. E. ; Zampese, J. A.
Author(s) at UniBasel Housecroft, Catherine ; Constable, Edwin Charles ; Zampese, Jennifer Ann ;
Year 2014
Title Assembling chiral salan-copper(II) complexes into a 2D-network with carboxylic acid functionalization
Journal Inorganic chemistry communications
Volume 43
Pages / **Article-Number** 51-55

In this work, we aim to assemble a polymeric copper(II) network by ligand modifications with carboxylic acid functional groups. A chiral, reduced salen ligand, salan R,R-H(2)1 with pendant ester functionalities has been synthesized. Its copper(II) complex, [Cu(R,R-1)], has been isolated, and its crystal structure determined by X-ray crystallography. Hydrolysing the ester groups of R,R-H(2)1 to carboxylic acids yields R,R-H(4)2 as the hydrochloride salt R,R-H(4)2 center dot 2HCl. Treatment of R,R-H(4)2 center dot 2HCl with copper(II) acetate in the presence of triethylamine yields the complex [Cu(R,R-H(2)2)](n) and X-ray structural analysis reveals that this consists of a 2D polymeric network. Each copper(II) center is bound within the near square-planar N2O2 donor set of the Schiff base ligand [R,R-H(2)2](2-) and pendant carboxylic acid groups of adjacent units coordinate through the CO2H carbonyl units in the axial sites of the copper ion to complete an axially distorted octahedral coordination environment The sheets are stacked via interdigitation of the cyclohexyl domains, giving an overall porous assembly containing carboxylic acid functionalities. This has proven to be an effective strategy for adding the dimensionality of metal-organic complexes by carboxylic acid functionalization of ligands.

Publisher Elsevier
ISSN/ISBN 1387-7003
edoc-URL http://edoc.unibas.ch/dok/A6233728
Full Text on edoc No;
Digital Object Identifier DOI 10.1016/j.inoche.2014.02.009
ISI-Number WOS:000335288100012
Document type (ISI) Article