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| Title: | Role of Anions in Assembling the Coordination Polymers of Bis-pyridyl-alkanediamides |
| Authors: | Khullar, S. (/jspui/browse?type=author&value=Khullar%2C+S.) Mandal, S.K. (/jspui/browse?type=author&value=Mandal%2C+S.K.) |
| Keywords: | Amide based ligand Anion Exchange Coordination Polymers Flexible ligand Photocatalysis |
| Issue Date: | 2016 |
| Publisher: | Wiley-Blackwell |
| Citation: | ChemistrySelect, 1(21), pp. 6641-6648 |
| Abstract: | Formation of Coordination Polymers (CPs) of an amide based flexible ligand, bis(3-pyridyl)butanediamide, has been found to be directed by the anion of the starting metal salt: a 1D network with rectangular loops was obtained with CuSO ₄ while a 2D network having two-fold parallel interpenetration was obtained with Cu(ClO ₄) ₂ . In the 1D network, a $\pi\cdots\pi$ interaction between C=O groups of the amide is present whereas the 2D network shows self-complementary amide-to-amide hydrogen bond. The reaction of the ligand with Cu(C ₆ H ₅ COO) ₂ results in a 1D chain, where the benzoate units are also coordinated to the Cu(II) centres. The conformational adjustments of the butyl spacer of the ligand in the CPs according to the requirements of the counter anions is observed in the present study. The role of the counter anions (ClO ₄ ⁻ , SO ₄ ²⁻ and C ₆ H ₅ COO ⁻) towards the formation of the CPs was monitored through the competitive reactions, where the ligand was allowed to react with Cu(NO ₃) ₂ in the presence of other three counter anions altogether at a time. Further, an understanding on the network stability was gained by studying the counter anion exchange reactions. |
| Description: | Only IISERM authors are available in the record. |
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