

Coordination Polymers of Alkylamines

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We have been investigating the use of alkylamine ligands in the synthesis of porous coordination polymers [1]. The amine groups form part of the ligand backbones, and are designed to improve the selectivity of carbon dioxide capture over other gases, as well as provide sites for post synthetic modification. More than 50 new ligands have been made, and more than a dozen porous frameworks identified and tested. The ligands investigated fall into three different categories: (i) azamacrocycles, (ii) piperazines, and (iii) linear alkyl amines. Good carbon dioxide capacities and selectivities have been observed, as well as high stability to moisture, selective molecular absorption, unusual structural transformations and interesting structural features. A particular focus has been on the design and use of high connectivity ligands as a strategy for improving the practical stability of the resultant porous materials.

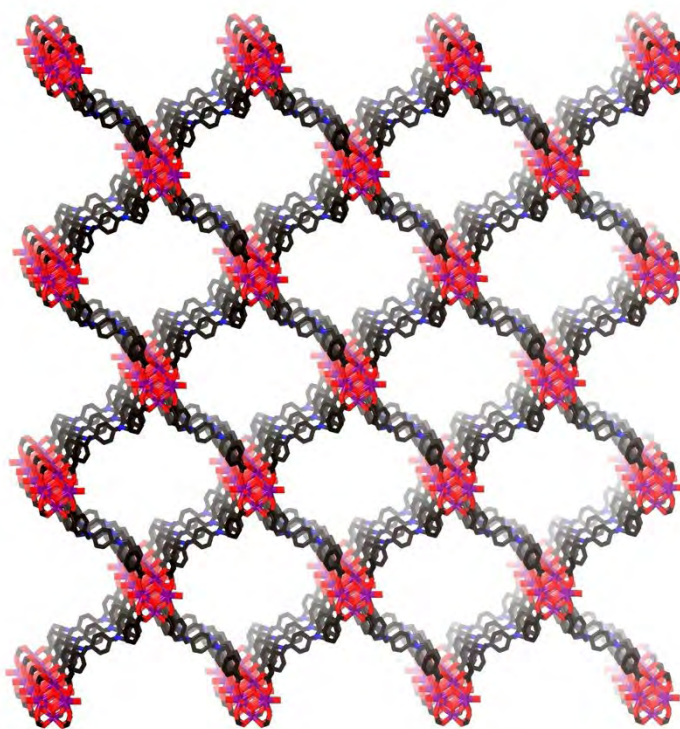


Figure 1. A porous coordination polymer containing alkylamine bridging ligands.

[1] Emerson, A. J., Chahine, A., Batten, S. R. & Turner, D. R. (2018). *Coord. Chem. Rev.* **365**, 1.