SELF-ASSEMBLED COORDINATION COMPLEXES BY SOLID-STATE REACTIONS
S. A. Bourne1 O. Hallale1 M. Kilkenny1 K. R. Koch2
1University of Cape Town Chemistry Rondebosch CAPE TOWN 7701 SOUTH AFRICA 2Department of Chemistry, University of Stellenbosch, Matieland 7600, South Africa

Coordination polymers and 0-D frameworks, built up of metal centres linked by organic ligands, have been extensively studied in recent years with especial interest in their utility for molecular recognition, non-linear optical properties or for catalytic purposes(1). We have recently shown that the symmetrical bipodal ‘N’N’’N’’-tetraalkyl-N,N-phenylenedicarbonylbis(thioureas) readily form 2:2 and 3:3 metallamacrocyclic complexes of platinum(II) and nickel(II) in high yields (2,3).

The structure of the metallamacrocyclic complexes seem to depend only on the relative (para vs meta) substitution position of the two carbonylthiourea moieties linked through the phenylene ring. We have also recently reported(4) on two related coordination polymers [ZnBr2(pyz)1] and [ZnBr2(py2)], the moieties linked through the phenylene ring. We have also recently reported(4) on two related coordination polymers [ZnBr2(pyz)1 and [ZnBr2(py2)]. The solid-state reaction of 1 with pyrazine yields 2, and 2 in its turn is readily converted to 1 by heating. The activation energy of the latter has been determined as 99.8 kJmol-1. Coordination polymers of these types, and the inclusion compounds they form, may be prepared by means of solid-solid or solid-gas reactions. Some examples will be presented.

References

Keywords: COORDINATION POLYMERS SELF-ASSEMBLY