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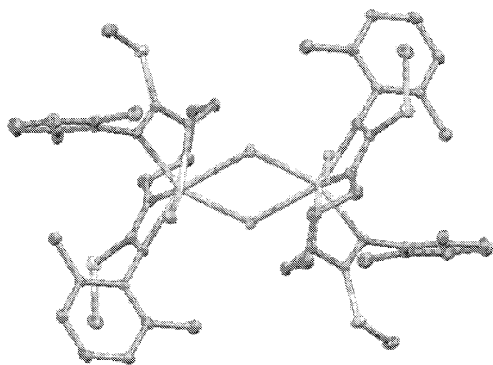
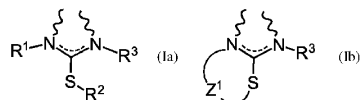


FIGURE 1

(57) Abstract: Catalyst compositions and polymerization systems include at least one thioguanidine complex according to Formula (I): MQ_aX_{4-a} (I) in which M is Ti, Zr, or Hf; a is 1 or 2; each group Q of the thioguanidine complex is a bidentate thioguanidine ligand bound to the metal center and having Formula (Ia) or Formula (Ib). In Formulas (Ia) and (Ib), each group R^1 , R^2 , and R^3 is independently chosen from alkyl groups or aryl groups; each group Z^1 is independently chosen from alkylene groups. If a = 2, groups R^3 of the two groups Q are optionally linked to each other through at least one covalent bond. Each X is covalently bonded or coordinated to the metal center and is independently chosen from alkyl groups or halides. The polymerization systems may be configured to copolymerize ethylene and α -olefins.



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