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(54) Title: BIDENTATE LIGANDS USEFUL IN CATALYST SYSTEM

(57) Abstract: Bidentate ligand of formula (II)  $R^1R^2M^1-R-M^2R^3R^4$ , wherein  $M^1$  and  $M^2$  are independently P, As or Sb;  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  independently represent tertiary alkyl groups, or  $R^1$  and  $R^2$  together and/or  $R^3$  and  $R^4$  together represent an optionally substituted bivalent cycloaliphatic group whereby the two free valencies are linked to  $M^1$  or  $M^2$ , and R represents a bivalent aliphatic bridging group containing from 2 to 6 atoms in the bridge, which is substituted with two or more substituents. A catalyst system comprising: a) a source of group VIII metal cations, b) a source of such a bidentate ligand, and c) a source of anions. Use of such a catalyst system in a process for the carbonylation of optionally substituted ethylenically or acetylenically unsaturated compounds by reaction with carbon monoxide and a coreactant.