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(54) Title: PROCESS FOR THE HYDROFORMYLATION OF AN ETHYLENICALLY UNSATURATED COMPOUND USING A BIDENTATE DIPHOSPHINE COMPOSITION WITH A BRIDGING GROUP COMPRISING SP2 HYBRIDIZED CARBON ATOMS BOUND TO THE PHOSPHOROUS ATOMS

(57) Abstract: Process for the hydroformylation of an optionally substituted ethylenically unsaturated compound by reaction thereof with carbon monoxide and hydrogen in the presence of a specific catalyst system. The specific catalyst system comprises: a) a source of group VIII metal cations; b) a diphosphine ligand having the general formula X^1-R-X^2, wherein X^1 and X^2 each independently represent an optionally substituted cyclic group with at least 5 ring atoms, of which one is a phosphorus atom, and R represents a bivalent optionally substituted bridging group, connected to each phosphorus atom by a sp2 hybridized carbon atom; c) an acid having a pKa < 3, measured in an aqueous solution at 18 °C or a salt derived thereof; and d) a source of halide anions. Furthermore some specific bidentate diphosphines used in this process are described.