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Substitute sheet - 14 May 2002



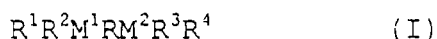
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HYDROFORMYLATION OF OLEFIN FEEDS CONTAINING DIENES

Process for hydroformylation of feed comprising compounds having single ethylenically unsaturated group by reaction thereof in the liquid phase with carbon monoxide and hydrogen in the presence of catalyst system comprising sources

- a) palladium cations;
- b) anions of acid having pKa, in aqueous solution at 18°C, of between -1 and 4;
- c) at least one bidentate ligand of formula



wherein M^1 and M^2 are independently phosphorus, arsenic or antimony, R is bivalent bridging group containing 1-4 atoms in bridge, R^1 and R^2 are independently substituted or unsubstituted hydrocarbyl group, or are together bivalent substituted or unsubstituted cyclic group whereby the two free valencies are linked to M^1 , and R^3 and R^4 are independently substituted or unsubstituted hydrocarbyl group, or are together bivalent substituted or unsubstituted cyclic group whereby the two free valencies are linked to M^2 ; and

- d) halide chosen from chloride, iodide and bromide and mixtures thereof;

wherein feed comprises one or more dienes and/or further multiply unsaturated alkenes to amount of 0.005 - 10 wt% based on total amount of ethylenically unsaturated compounds in feed.

catalyst system comprises a source of anions of an acid having a pKa value, measured in aqueous solution at 18 °C, of between -1 and 4.