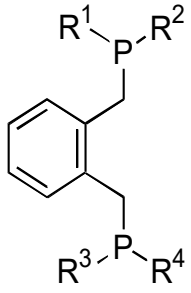
Claims

1. A process comprising the process steps of:

a) initially charging an ethylenically unsaturated compound;

b) adding a ligand of formula (**I**):



(**I**)

where

R^1 and R^3 are each a -(C_3-C_{20})-heteroaryl radical,

R^2 and R^4 are each -(C_1-C_{12})-alkyl,

and a compound comprising Pd;

c) pretreating aluminium triflate at least twice by applying a vacuum to reduce pressure and the vacuum applied is broken by flooding with inert gas;

d) adding the pretreated aluminium triflate from c) as a solution,

where the ratio of aluminium triflate:ligand is in the range from 2.5 mol:1 mol to 15 mol:1 mol;

e) adding an alcohol;

f) feeding in CO;

g) heating the reaction mixture from a) to f), with conversion of the ethylenically unsaturated compound to an ester.

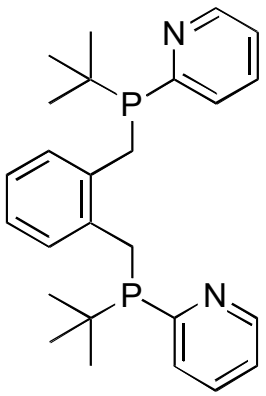
2. The process according to Claim 1,

where R^1, R^3 are each selected from furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, imidazolyl, pyrazolyl, furazanyl, tetrazolyl, pyridyl, pyridazinyl, pyrimidyl, pyrazinyl, benzofuranyl, indolyl, isoindolyl, benzimidazolyl, quinolyl, isoquinolyl.

3. The process according to any of Claims 1 to 2,

where R^2 and R^4 are ^{ter}Bu.

4. The process according to any of Claims 1 to 3,
wherein the ligand in process step b) has the formula (**1**):



(**1**).

5. The process according to any of Claims 1 to 4,
wherein the process comprises the additional process step c'):
c') dissolving the pretreated aluminium triflate from c) in a solvent.

6. The process according to Claim 5,
wherein the solvent used in process step c') is the same alcohol as in process step e).

7. The process according to any of Claims 1 to 6,
wherein the compound in process step b) comprising Pd is selected from palladium dichloride, palladium(II) acetylacetonate, palladium(II) acetate, dichloro(1,5-cyclooctadiene)palladium(II), bis(dibenzylideneacetone)palladium, bis(acetonitrile)dichloropalladium(II), (cinnamyl)palladium dichloride.

8. The process according to any of Claims 1 to 7,
wherein the alcohol in process step e) is selected from methanol, ethanol, 1-propanol, 1-butanol, 1-pentanol, 1-hexanol, 2-propanol, *tert*-butanol, 3-pentanol, cyclohexanol, phenol, or mixtures thereof.

9. The process according to any of Claims 1 to 8,
wherein the alcohol in process step e) is methanol.