C L A I M S

1. A ligand having the general formula (I);

$$P(R^4)-P(R^1)(R^2)=N(R^3) \quad (I)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

2. A ligand having the general formula (II);

$$P(R^1)(R^2)-P(R^4)=N(R^3) \quad (II)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^2 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

3. A ligand according to any of Claims 1 to 2 wherein R^4 is an optionally substituted alkylenedioxy or arylenedioxy group.

4. A ligand according to any of Claims 1 to 3 wherein R^4 is an optionally substituted 1,2-alkylenedioxy, 1,2-arylenedioxy, 2,3-arylenedioxy, 1,8-arylenedioxy or 1,1'-biaryl-2,2'-dioxy group.

5. A ligand according to any of Claims 1 to 4 wherein the R^4 group is an optionally substituted ortho-phenylenedioxy group.

6. A ligand according to any of Claims 1 to 5 wherein the R^1 and R^2 groups are independently selected from optionally substituted alkyl or heteroalkyl groups.

7. A ligand according to any of Claims 1 to 5 wherein the R^1 and the R^2 groups are independently selected from optionally substituted aromatic and optionally substituted heteroaromatic groups.

8. A catalyst system comprising:
   a) a source of chromium, molybdenum or tungsten;
   b) one or more ligands according to any of Claims 1 to 7; and
   c) a cocatalyst.

9. A process for the preparation of a ligand as claimed in any of Claims 1 to 7 comprising reacting:
   i) a compound having the general formula (III);

$$(R^1)(R^2)P\text{-}N(R^3)\text{-}R^5 \quad \text{(III)}$$

wherein:
the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;
the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen and a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor,

preferably at a temperature in the range of from -30 to 200 °C.

10. A ligand system comprising the product formed by reacting i) a compound having the general formula (III);

$$(R^1)(R^2)P\text{-}N(R^3)\text{-}R^5 \quad (III)$$

wherein:

the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen and a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X-P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor, preferably at a temperature in the range of from -30 to 200 °C.

11. A catalyst system comprising the product formed by combining:

a) a source of chromium, molybdenum or tungsten;

b) a ligand system according to Claim 10; and;

c) a cocatalyst.

12. A process for the oligomerisation of olefinic monomers, wherein the process comprises contacting at least one olefinic monomer with the catalyst system according to Claim 8 or Claim 11.

13. The process of Claim 12 wherein the olefinic monomer is ethylene.

14. The process of Claim 12 or 13 wherein the process is carried out at a temperature in the range of from 0 to 200 degrees C, preferably from 50 to 150 degrees C, and more preferably from 70 to 150 degrees C.

15. A ligand having the general formula (IV);

$$(R^1)(R^8)P\text{-}N(R^3)\text{-}P(R^4) \quad (IV)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^8 group is selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups;

the R^3 group is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

16. A ligand according to Claim 15 wherein R^4 is an optionally substituted alkylenedioxy or arylenedioxy group.

17. A ligand according to Claim 15 or 16, wherein R^4 is an optionally substituted 1,2-alkylenedioxy, 1,2-arylenedioxy, 2,3-arylenedioxy, 1,8-arylenedioxy or 1,1'-biaryl-2,2'-dioxy group.

18. A ligand according to any of Claims 15 to 17, wherein the R^4 group is an optionally substituted ortho-phenylenedioxy group.

19. A ligand according to any of Claims 15 to 18, wherein the R^1 group is selected from optionally substituted aromatic and optionally substituted heteroaromatic groups.

20. A ligand according to Claim 19 wherein the R^1 and the R^8 groups are independently selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups.

21. A catalyst system comprising:

a) a source of chromium, molybdenum or tungsten;

b) one or more ligands according to any of Claims 15 to 20; and

c) a cocatalyst.

22. A process for the preparation of a ligand as claimed in any of Claims 15 to 20 comprising reacting:

i) a compound having the general formula (V);

$$(R^1)(R^8)P\text{-}N(R^3)\text{-}R^5 \quad (V)$$

wherein:

the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^8 group is selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen or a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula X-P(R^4), wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the

alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor,

preferably at a temperature in the range of from -30 to 200 °C.

23. A ligand having the general formula (VI);

$$(R^9)(R^{10})P\text{-}N(R^3)\text{-}P(R^4) \qquad (VI)$$

wherein:

the R^9 and R^{10} groups are independently selected from optionally substituted alkyl or heteroalkyl groups;

the R^3 group is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy or alkylenedimercapto structure which is bound to the phosphorus atom through the two oxygen or sulphur atoms of the alkylenedioxy or alkylenedimercapto structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

24. A catalyst system comprising:

a) a source of chromium, molybdenum or tungsten;

b) one or more ligands according to Claim 23; and

c) a cocatalyst.

25. A process for the preparation of a ligand as claimed in Claim 23 comprising reacting:

i) a compound having the general formula (VII);

$$(R^9)(R^{10})P\text{-}N(R^3)\text{-}R^5 \quad \text{(VII)}$$

wherein:

the R^9 and R^{10} groups are independently selected from optionally substituted alkyl or heteroalkyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen or a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy or alkylenedimercapto structure which is bound to the phosphorus atom through the two oxygen or sulphur atoms of the alkylenedioxy or alkylenedimercapto structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the

arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor,

preferably at a temperature in the range of from -30 to 200 °C.

26. A process for the oligomerisation of olefinic monomers, wherein the process comprises contacting at least one olefinic monomer with the catalyst system according to Claim 21 or Claim 24.

C L A I M S

1. A ligand having the general formula (I);

$$P(R^4)\text{-}P(R^1)(R^2)\text{=}N(R^3) \quad (I)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

2. A ligand having the general formula (II);

$$P(R^1)(R^2)\text{-}P(R^4)=N(R^3) \quad (II)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^2 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

3. A ligand according to any one of Claims 1 to 2 wherein R^4 is an optionally substituted alkylenedioxy or arylenedioxy group.

4. A ligand according to any one of Claims 1 to 3 wherein R^4 is an optionally substituted 1,2-alkylenedioxy, 1,2-arylenedioxy, 2,3-arylenedioxy, 1,8-arylenedioxy or 1,1'-biaryl-2,2'-dioxy group.

5. A ligand according to any one of Claims 1 to 4 wherein the R^4 group is an optionally substituted ortho-phenylenedioxy group.

6. A ligand according to any one of Claims 1 to 5 wherein the R^1 and R^2 groups are independently selected from optionally substituted alkyl or heteroalkyl groups.

7. A ligand according to any one of Claims 1 to 5 wherein the R^1 and the R^2 groups are independently selected from optionally substituted aromatic and optionally substituted heteroaromatic groups.

8. A ligand according to Claim 7 wherein the R^1 and the R^2 groups are independently selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups.

9. A catalyst system comprising:

a) a source of chromium, molybdenum or tungsten;

b) one or more ligands according to any one of Claims 1 to 8; and

c) a cocatalyst.

10. A process for the preparation of a ligand as claimed in any one of Claims 1 to 8 comprising reacting:

i) a compound having the general formula (III);

$$(R^1)(R^2)P\text{-}N(R^3)\text{-}R^5 \quad \text{(III)}$$

wherein:

the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen and a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor.

11. A process according to Claim 10 wherein the temperature during reacting is in the range of from -30 to 200 °C.

12. A ligand system comprising the product formed by reacting i) a compound having the general formula (III);

$(R^1)(R^2)P\text{-}N(R^3)\text{-}R^5$ (III)

wherein:

the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^2 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen and a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor.

13. A ligand system according to Claim 12 wherein the temperature during reacting is in the range of from -30 to 200 °C.

14. A catalyst system comprising the product formed by combining:

a) a source of chromium, molybdenum or tungsten;

b) a ligand system according to Claim 12; and;

c) a cocatalyst.

15. A process for the oligomerisation of olefinic monomers, wherein the process comprises contacting at least one olefinic monomer with the catalyst system according to Claim 9 or Claim 14.

16. The process of Claim 15 wherein the olefinic monomer is ethylene.

17. The process of Claim 15 or 16 wherein the process is carried out at a temperature in the range of from 0 to 200 degrees C.

18. The process of Claim 17 wherein the temperature is in the range of from 50 to 150 degrees C.

19. The process of Claim 17 wherein the temperature is in the range of from 70 to 150 degrees C.

20. A ligand having the general formula (IV);

$$(R^1)(R^8)P\text{-}N(R^3)\text{-}P(R^4) \quad (IV)$$

wherein:

the R^1 group is selected from a hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl group;

the R^8 group is selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups;

the R^3 group is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

21. A ligand according to Claim 20 wherein R^4 is an optionally substituted alkylenedioxy or arylenedioxy group.

22. A ligand according to Claim 20 or 21 wherein R^4 is an optionally substituted 1,2-alkylenedioxy, 1,2-arylenedioxy, 2,3-arylenedioxy, 1,8-arylenedioxy or 1,1'-biaryl-2,2'-dioxy group.

23. A ligand according to any one of Claims 20 to 22 wherein the R^4 group is an optionally substituted ortho-phenylenedioxy group.

24. A ligand according to any one of Claims 20 to 23 wherein the R^1 group is selected from optionally substituted aromatic and optionally substituted heteroaromatic groups.

25. A ligand according to Claim 24 wherein the R^1 and the R^8 groups are independently selected from an aromatic or heteroaromatic group which comprise at

least one polar substituent group, and optionally one or more non-polar substituent groups.

26. A catalyst system comprising:

a) a source of chromium, molybdenum or tungsten;

b) one or more ligands according to any one of Claims 20 to 25; and

c) a cocatalyst.

27. A process for the preparation of a ligand as claimed in any one of Claims 20 to 25 comprising reacting:

i) a compound having the general formula (V);

$$(R^1)(R^8)P\text{-}N(R^3)\text{-}R^5 \quad (V)$$

wherein:

the R^1 group is selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

the R^8 group is selected from an aromatic or heteroaromatic group which comprise at least one polar substituent group, and optionally one or more non-polar substituent groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen or a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises

an optionally substituted alkylenedioxy, alkylenedimercapto or alkylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the alkylenedioxy, alkylenedimercapto or alkylenediamino structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor.

28. A process according to Claim 27 wherein the temperature during reacting is in the range of from -30 to 200 °C.

29. A ligand having the general formula (VI);

$$(R^9)(R^{10})P\text{-}N(R^3)\text{-}P(R^4) \qquad (VI)$$

wherein:

the R^9 and R^{10} groups are independently selected from optionally substituted alkyl or heteroalkyl groups;

the R^3 group is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^4 group is an optionally substituted alkylenedioxy or alkylenedimercapto structure which is bound to the phosphorus atom through the two oxygen or sulphur atoms of the alkylenedioxy or alkylenedimercapto structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the

phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure.

30. A catalyst system comprising:

a) a source of chromium, molybdenum or tungsten;

b) one or more ligands according to Claim 29; and

c) a cocatalyst.

31. A process for the preparation of a ligand as claimed in Claim 29 comprising reacting:

i) a compound having the general formula (VII);

$$(R^9)(R^{10})P\text{-}N(R^3)\text{-}R^5 \quad \text{(VII)}$$

wherein:

the R^9 and R^{10} groups are independently selected from optionally substituted alkyl or heteroalkyl groups;

the R^3 is selected from hydrogen, a hydrocarbyl group, a substituted hydrocarbyl group, a heterohydrocarbyl group, a substituted heterohydrocarbyl group, a silyl group;

the R^5 group is selected from hydrogen or a $P(R^6)(R^7)$- group;

the R^6 and the R^7 groups are independently selected from hydrocarbyl, substituted hydrocarbyl, heterohydrocarbyl and substituted heterohydrocarbyl groups;

and

ii) a compound of the formula $X\text{-}P(R^4)$, wherein X is a halide and the R^4 group is a group which comprises an optionally substituted alkylenedioxy or alkylenedimercapto structure which is bound to the phosphorus atom through the two oxygen or sulphur atoms of the alkylenedioxy or alkylenedimercapto

structure or an optionally substituted arylenedioxy, arylenedimercapto or arylenediamino structure which is bound to the phosphorus atom through the two oxygen, sulphur or nitrogen atoms of the arylenedioxy, arylenedimercapto or arylenediamino structure,

and

if the R^5 group is hydrogen, a HX-acceptor.

32. A process according to Claim 31 wherein the temperature during reacting is in the range of from -30 to 200 °C.

33. A process for the oligomerisation of olefinic monomers, wherein the process comprises contacting at least one olefinic monomer with the catalyst system according to Claim 26 or Claim 30.