

Title (en)  
METHOD FOR PREPARING CHIRAL DIPHOSPHINES

Title (de)  
VERFAHREN ZUR HERSTELLUNG VON CHIRALEN DIPHOSPHINEN

Title (fr)  
PROCEDE DE PREPARATION DE DIPHOSPHINES CHIRALES

Publication  
**EP 1153031 A1 20011114 (FR)**

Application  
**EP 00900591 A 20000114**

Priority  
• FR 0000083 W 20000114  
• FR 9902119 A 19990219

Abstract (en)  
[origin: FR2789992A1] Preparation of dicyano-2,2'-bis-(disubstituted phosphino)-1,1'-binaphthyl or biphenyl derivatives (I) comprises: (1) brominating a 2,2'-diol; (2) esterifying the obtained dibromo compound (III) using a sulfonic acid; (3) replacing the Br atoms with cyano by reacting with a nucleophile and (4) coupling with a disubstituted phosphine in presence of transition metal catalyst. Preparation of dicyano-2,2'-bis-(disubstituted phosphino)-1,1'-binaphthyl or biphenyl of formula (I) comprises: (1) brominating a 2,2'-diol of formula (II); (2) esterifying the obtained dibromo compound of formula (III) using a sulfonic acid or its activated derivative; (3) replacing the Br atoms of (III) with cyano groups by reacting the obtained disulfonate with a suitable nucleophile and (4) coupling with a phosphine of formula X-P(Ar<1>)Ar<2> (VI) in the presence of a transition metal-based catalyst. A = naphthyl or phenyl; Ar<1>, Ar<2> = saturated or aromatic carbocyclic group and X = H or halo. Independent claims are included for the following: (i) the preparation of diamine compounds of formula (VII) by reducing (I); (ii) a process as above but including the additional step of converting (I), in basic or acid medium, into the corresponding dicarboxylic acid of formula (A); (iii) new compounds (VII) and (iv) new disulfonate intermediates of formula (IV). P' = aliphatic hydrocarbyl (optionally substituted by carbocyclic aryl) or carbocyclic aryl; provided that P' is other than CF<sub>3</sub> or p-tolyl.

IPC 1-7  
**C07F 9/50**; **B01J 31/24**; **C07B 53/00**; **C07C 309/63**

IPC 8 full level  
**B01J 31/24** (2006.01); **C07B 53/00** (2006.01); **C07B 61/00** (2006.01); **C07C 37/62** (2006.01); **C07C 303/28** (2006.01); **C07C 303/30** (2006.01); **C07C 309/65** (2006.01); **C07F 9/50** (2006.01); **C07F 15/00** (2006.01)

CPC (source: EP US)  
**C07B 53/00** (2013.01 - EP US); **C07C 37/62** (2013.01 - EP US); **C07C 303/28** (2013.01 - EP US); **C07C 303/30** (2013.01 - EP US); **C07F 9/5027** (2013.01 - EP US); **C07F 9/5068** (2013.01 - EP US); **C07F 9/5072** (2013.01 - EP US)

Citation (search report)  
See references of WO 0049028A1

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**FR 2789992 A1 20000825**; **FR 2789992 B1 20010525**; AU 3055100 A 20000904; EP 1153031 A1 20011114; JP 2002537305 A 20021105; US 2003225297 A1 20031204; US 6610875 B1 20030826; WO 0049028 A1 20000824

DOCDB simple family (application)  
**FR 9902119 A 19990219**; AU 3055100 A 20000114; EP 00900591 A 20000114; FR 0000083 W 20000114; JP 2000599766 A 20000114; US 45451003 A 20030605; US 91383101 A 20011211