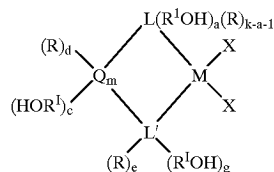
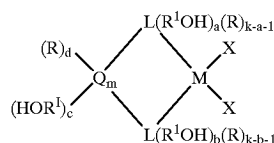




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United States Patent [19]**Llinás et al.**[11] **Patent Number:** **6,114,555**[45] **Date of Patent:** **Sep. 5, 2000**[54] **FUNCTIONALIZED METALLOCENE COMPOUNDS, SYNTHESIS PROCESS AND USE THEREOF**[75] Inventors: **Gerardo Hidalgo Llinás**, Cartagena;
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Madrid, both of Spain[73] Assignee: **Repsol Química S.A.**, Madrid, Spain[21] Appl. No.: **09/300,301**[22] Filed: **Apr. 27, 1999**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.**⁷ **C07F 17/00**; **C07F 7/00**[52] **U.S. Cl.** **556/11**; **556/7**; **556/8**;
556/12; **556/28**; **556/53**; **502/103**; **502/117**;
526/160; **526/943**[58] **Field of Search** **556/7**, **8**, **11**, **12**,
556/28, **53**; **502/103**, **117**; **526/160**, **943**[56] **References Cited****U.S. PATENT DOCUMENTS**5,753,769 5/1998 Ueda et al. 525/323
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(1992).*Primary Examiner*—Porfirio Nazario-Gonzalez
Attorney, Agent, or Firm—Ladas & Parry[57] **ABSTRACT**The present invention relates to metallocene compounds
characterized by the following formulas:

wherein:

L, equal to or different from each other, is selected from the group comprising: cyclopentadienyl, indenyl, tetrahydroindenyl, fluorenyl, octahydrofluorenyl or benzoindenyl; each R is independently selected from hydrogen, C₁–C₂₀ alkyl, C₃–C₂₀ cycloalkyl, C₆–C₂₀ aryl, C₃–C₂₀ alkenyl, C₇–C₂₀ arylalkyl, C₇–C₂₀ alkylaryl, C₈–C₂₀ arylalkenyl, linear or branched, optionally substituted by 1 to 10 halogen atoms, or a group SiR^{II}₃; each R^f equal to or different from each other, is a group SiR^{II}₂, or a divalent aliphatic or aromatic hydrocarbon group containing from 1 to 20 carbon atoms, optionally containing from 1 to 5 heteroatoms of groups 14 to 16 of the periodic table of the elements and boron; each Q is independently selected from B, C, Si, Ge, Sn; M is a metal of group 3, 4 or 10 of the Periodic Table, Lanthanide or Actinide; each X is independently selected from: hydrogen, chlorine, bromine, OR^{II}, NR^{II}₂, C₁–C₂₀ alkyl or C₆–C₂₀ aryl; each R^{II} is independently selected from C₁–C₂₀ alkyl, C₃–C₂₀ cycloalkyl, C₆–C₂₀ aryl, C₃–C₂₀ alkenyl, C₇–C₂₀ arylalkyl, C₇–C₂₀ arylalkenyl or alkylaryl, linear or branched; R^{II} is methyl, ethyl, isopropyl; L' is N or O.

26 Claims, No Drawings