

Title (en)
METHOD FOR PRODUCING MONO-AMINOFUNCTIONALIZED DIALKYLPHOSPHINIC ACIDS AND ESTERS AND SALTS THEREOF AND USE THEREOF

Title (de)
VERFAHREN ZUR HERSTELLUNG VON MONO-AMINOFUNKTIONALISIERTEN DIALKYLPHOSPHINSÄUREN, DEREN SALZE UND ESTER UND IHRE VERWENDUNG

Title (fr)
PROCÉDÉ DE PRODUCTION D'ACIDES PHOSPHINIQUES DIALKYLE À MONOFONCTIONNALISATION AMINO, DE LEURS SELS OU ESTERS, ET LEUR UTILISATION

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Application
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Abstract (en)
[origin: WO2010051886A1] The invention relates to a method for producing mono-aminofunctionalized dialkylphosphinic acids and esters and salts thereof, characterized in that a) a phosphinic acid source (I) is reacted with olefins (IV) to yield an alkylphosphonic acid, salt or ester (II) thereof in the presence of a catalyst A, b) the thus obtained alkylphosphonic acid, salt or ester (II) thereof is reacted with acetylenic compounds of formula (V) to yield a mono-functionalized dialkylphosphinic acid derivative (VI) in the presence of a catalyst B, and c) the thus obtained mono-functionalized dialkylphosphinic acid derivative (VI) is reacted with a hydrogen cyanide source to yield a mono-functionalized dialkylphosphinic acid derivative (VII) in the presence of a catalyst C, and d) the thus obtained mono-functionalized dialkylphosphinic acid derivative (VII) is reacted to yield a mono-aminofunctionalized dialkylphosphinic acid derivative (III) in the presence of a catalyst D or a reduction agent, wherein R1, R2, R3, R4, R5, R6 are the same or different and stand independently of each other, among other things, for H, C1-C18 alkyl, C6-C18 aryl, C6-C18 aralkyl, C6-C18 alkylaryl, and X stands for H, C1-C18 alkyl, C6-C18 aryl, C6-C18 aralkyl, C6-C18 alkylaryl, Mg, Ca, Al, Sb, Sn, Ge, Ti, Fe, Zr, Zn, Ce, Bi, Sr, Mn, Cu, Ni, Li, Na, K and/or a protonized nitrogen base, and Y stands for a mineral acid, a carboxylic acid, a Lewis acid or an organic acid, n = 0 to 4 and the catalysts A, B, C and D are formed by transition metals, transition metal compounds and/or catalyst systems composed of a transition metal and/or a transition metal compound and at least one ligand.

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