

ORGANOMETALLIC PRECURSOR COMPOUNDS

ABSTRACT

This invention relates to organometallic compounds represented by the formula $(L_1)_yM(L_2)_{z-y}$ wherein M is a Group 5 metal or a Group 6 metal, L_1 is a substituted or unsubstituted anionic 6 electron donor ligand, L_2 is the same or different and is (i) a substituted or unsubstituted anionic 2 electron donor ligand, (ii) a substituted or unsubstituted cationic 2 electron donor ligand, or (iii) a substituted or unsubstituted neutral 2 electron donor ligand; y is an integer of 1, and z is the valence of M; and wherein the sum of the oxidation number of M and the electric charges of L_1 and L_2 is equal to 0.; a process for producing the organometallic compounds; and a method for depositing a metal and/or metal carbide/nitride layer on a substrate by the thermal or plasma enhanced dissociation of the organometallic precursor compounds.