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(54) Title: ETHYLENE ELASTOMER COMPOSITIONS

(57) Abstract: In a process for producing an elastomer composition, ethylene, at least one alpha-olefin, and at least one diene is contacted with a catalyst system comprising at least one metallocene catalyst compound and a non-coordinating anion activator. The at least one metallocene catalyst compound comprises an indenyl complex having the general formula: $(\text{In}^1\text{R}^1_m)\text{R}^3(\text{In}^2\text{R}^2_p)\text{MX}_q$; wherein the or each R^1 is a substituent of the indenyl ring In^1 and the or each R^2 is a substituent of the indenyl ring In^2 , each R^1 and R^2 is, independently, a halogen or a hydrocarbyl, halocarbyl, hydrocarbyl-substituted organometalloid or halocarbyl-substituted organometalloid group containing up to about 20 carbon atoms, and at least one R^1 or R^2 substituent is bonded to the 2-position or the 4-position of its associated indenyl ring; m is 1 to 6; p is 1 to 6; R^3 is a bridging group, such that the number of atoms in the direct chain between the $(\text{In}^1\text{R}^1_m)$ ligand and the $(\text{In}^2\text{R}^2_p)$ ligand is 1 to 8, M is a transition metal from Group 3, 4, 5 or 6 of the Periodic Table of the Elements, or an actinide or lanthanide metal atom; q is equal to the valence of M minus 2; and each X is a non-cyclopentadienyl ligand and is, independently, a hydrocarbyl, oxyhydrocarbyl, halocarbyl, hydrocarbyl-substituted organometalloid, oxyhydrocarbyl-substituted organometalloid or halocarbyl-substituted organometalloid group containing up to about 20 carbon atoms; provided that two X groups may be joined and bound to the metal atom to form a metallacycle ring containing from about 3 to about 20 carbon atoms; or two X groups together can be an olefin, diolefin or aryne ligand.

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