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(54) Title: PHTHALATE-FREE ZIEGLER-NATTA CATALYSTS USING MIXED INTERNAL DONORS TO ADJUST ACHIEVABLE XS RANGE

(57) Abstract: Embodiments disclosed herein relate to a pre-catalyst, a catalyst and a process for polymerizing propylene. The phthalate-free Ziegler-Natta pre-catalyst comprises a Mg-based support; a transition metal selected from Groups 4 to 8 of the periodic table; a first internal electron donor (ID1) consisting of at least one diester; a second internal electron donor (ID2) consisting of at least one 1,3-diether. The at least one diester comprises one or more maleates and/or substituted maleates. The at least one 1,3-diether comprises one or more diethers represented by the general structure (I).