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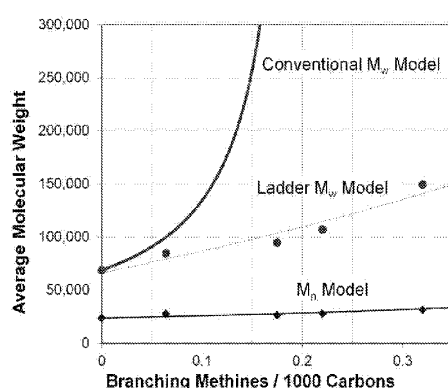
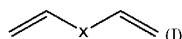
(54) **Title:** PROCESS OF POLYMERIZING TRI-FUNCTIONAL LONG-CHAIN BRANCHED OLEFIN

FIG. 1

(57) **Abstract:** Processes of synthesizing long-chain branched polymers. The processes include contacting together one or more C_2 - C_{14} alkene monomers, at least one diene, optionally a solvent, and a multi-chain catalyst optionally in the presence of hydrogen, wherein the multi-chain catalyst comprises a plurality of polymerization sites; producing at least two polymer chains of the C_2 - C_{14} alkene monomers, each polymer chain polymerizing at one of the polymerization sites; synthesizing the long-chain branched polymers by connecting the two polymer chains with the diene, the joining of the two polymer chains being performed in a concerted manner during the polymerization; and producing tri-functional long chain branches from the diene, wherein the tri-functional long chain branches occur at a frequency of at least 0.03 per 1000 carbon atoms. The diene has a structure according to formula (I):

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
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