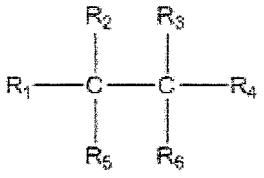
What is claimed is:

1. A process to prepare a second propylene-based polymer from a first propylene-based polymer, each propylene-based polymer having a melt flow rate (MFR; 2.16kg/230°C) with the MFR of the second propylene-based polymer greater than the MFR of the first propylene-based polymer, the process comprising the step of contacting under visbreaking conditions the first propylene-based polymer with at least one carbon-carbon (C-C) free-radical initiator of Structure I:



(Structure I),

wherein R_1, R_2, R_3, R_4, R_5 and R_6 are each, independently, a hydrocarbyl group or a substituted hydrocarbyl group, and wherein, optionally, two or more R groups (R_1, R_2, R_3, R_4, R_5 and R_6) form a ring structure, wherein the term "propylene-based polymer" refers to a polymer that comprises at least a majority weight percent polymerized propylene (based on the weight of polymer), wherein the term "substituted hydrocarbyl group" refers to a hydrocarbyl radical in which one or more hydrogen atoms bound to any carbon of the hydrocarbyl radical, and/or one or more carbon atoms of the hydrocarbyl radical, is/are, independently, replaced by one of the following: (i) a heteroatom, or (ii) a group, comprising at least one heteroatom, and other than a peroxy group (-OOH); wherein the visbreaking conditions include a temperature of from 210°C to 270°C.

2. The process of claim 1, wherein R_1, R_2, R_3, R_4, R_5 and R_6 are each, independently, a C_{1-24} hydrocarbyl group or a substituted C_{1-24} hydrocarbyl group.

3. The process of claim 1 or 2, wherein the C-C free-radical initiator is present in an amount of at least 0.05 wt% based on the weight of the first propylene-based polymer.

4. The process of any one of the previous claims, wherein the C-C free-radical initiator has a decomposition temperature of greater than 130°C based on DSC measurements.

5. The process of any one of the previous claims, comprising contacting the first propylene-based polymer with at least two C-C free-radical initiators.

6. The process of any of one of the previous claims, wherein R_1 and R_4 are each a phenyl group.

7. The process of any of one of the previous claims, wherein the at least one C-C free radical initiator is selected from the group consisting of the following: 2,3-dimethyl-2,3-diphenyl butane; 3,4-dimethyl-3,4-diphenyl hexane; and 3,4-diethyl-3,4-diphenyl hexane.

8. The process of any one of the previous claims, wherein the MFR of the second propylene-based polymer is at least 130% of the MFR of the first propylene based polymer.

9. The process of claim 1, wherein the visbreaking conditions further include contacting the first propylene-based polymer with the C-C free radical initiator under an inert atmosphere.