CLAIMS

1. An ethylene-based polymer comprising polymerized units derived from ethylene, diene, and one or more C_3–C_{12} α-olefins, wherein the ethylene-based polymer comprises:
   a melt viscosity ratio ($V_{0.1}/V_{100}$) at 190 °C greater than 20, where $V_{0.1}$ is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 0.1 radians/second, and V_{100} is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 100 radians/second; and
   an average g' greater than 0.860, where the average g' is an intrinsic viscosity ratio determined by gel permeation chromatography using a triple detector.

2. An ethylene-based polymer comprising polymerized units derived from ethylene, diene, and optionally one or more C_3–C_{12} α-olefins, wherein the ethylene-based polymer comprises:
   a melt strength greater than 10 cN (Rheotens device, 190°C, 2.4 mm/s^2, 120 mm from the die exit to the center of the wheels, extrusion rate of 38.2 s^{-1}, capillary die of 30 mm length, 2 mm diameter and 180° entrance angle); and
   an average g' greater than 0.860, where the average g' is an intrinsic viscosity ratio determined by gel permeation chromatography using a triple detector.

3. The ethylene-based polymer of claim 1, wherein the ethylene-based polymer has a melt strength of greater than 10 cN (Rheotens device, 190°C, 2.4 mm/s^2, 120 mm from the die exit to the center of the wheels, extrusion rate of 38.2 s^{-1}, capillary die of 30 mm length, 2 mm diameter and 180° entrance angle).

4. The ethylene-based polymer of claim 2, wherein the ethylene-based polymer has a melt viscosity ratio ($V_{0.1}/V_{100}$) at 190 °C is greater than 20, where $V_{0.1}$ is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 0.1 radians/second, and V_{100} is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 100 radians/second.

5. The ethylene-based polymer of any preceding claim, wherein the diene is unconjugated and acyclic.

~~6. The ethylene-based polymer of claim 5, wherein the diene is acyclic.~~

~~7~~6. The ethylene-based polymer of claim ~~6~~5, wherein the diene comprises 1,4-pentadiene, 1,5-hexadiene, 1,6-heptadiene, 1,7-octadiene, 1,8-nonadiene, 1,9-decadiene, 1,10-undecadiene, 1,11-dodecadiene, dimethyldivinylsilane, dimethyldiallylsilane, dimethylallylvinylsilane.

~~8~~7. The ethylene-based polymer of any preceding claim, wherein the ethylene-based polymer comprises a low molecular weight polymer fraction and a high molecular weight polymer fraction, wherein the low molecular weight polymer fraction and the high molecular weight polymer fraction each comprise polymerized units derived from ethylene, diene, and one or more C_3–C_{12} α-olefins.

~~9~~8. The ethylene-based polymer of any preceding claim, wherein the second molecular weight polymer fraction comprises 0.5 to 30 % by weight of the polymer.

~~10~~9. The ethylene-based polymer of claim ~~9~~8, wherein the second molecular weight polymer fraction comprises between 1 and 15 % by weight of the polymer.

~~11~~10. The ethylene-based polymer of any preceding claim, wherein the MI is greater than 0.1, wherein MI is the melt index in g/10min according to ASTM D1238.

~~12~~11. The ethylene-based polymer of any preceding claim, wherein the MI is greater than 1, wherein MI is the melt index in g/10min according to ASTM D1238.

~~13. The ethylene-based polymer of claim 13, wherein the MI is greater than 2, wherein MI is the melt index in g/10min according to ASTM D1238.~~

~~14. The ethylene-based polymer of claim 14, wherein the MI is greater than 3, wherein MI is the melt index in g/10min according to ASTM D1238.~~

~~15~~12. The ethylene-based polymer of any preceding claim, wherein the average g' is greater than 0.88.

~~16. The ethylene-based polymer of claim 15, wherein the average g' is greater than 0.90.~~

~~17~~13. The ethylene-based polymer of any preceding claim, wherein the melt strength is greater than 20 cN (Rheotens device, 190°C, 2.4 mm/s^2, 120 mm from the die exit to the center

of the wheels, extrusion rate of 38.2 s^{-1}, capillary die of 30 mm length, 2 mm diameter and 180° entrance angle).

~~18. The ethylene-based polymer of claim line 13, wherein the melt strength is greater than 30 cN (Rheotens device, 190°C, 2.4 mm/s^2, 120 mm from the die exit to the center of the wheels, extrusion rate of 38.2 s^{-1}, capillary die of 30 mm length, 2 mm diameter and 180° entrance angle).~~

~~19~~14. The ethylene-based polymer of any preceding claim, wherein the melt viscosity ratio ($V_{0.1}/V_{100}$) at 190 °C is greater than 25, where $V_{0.1}$ is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 0.1 radians/second, and V_{100} is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 100 radians/second.

~~20. The ethylene-based polymer of claim 15, wherein the melt viscosity ratio ($V_{0.1}/V_{100}$) at 190 °C is greater than 30, where $V_{0.1}$ is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 0.1 radians/second, and V_{100} is the viscosity of the ethylene-based polymer at 190 °C at a frequency of 100 radians/second.~~

~~21~~15. The ethylene-based polymer of any preceding claim, wherein the ethylene-based polymer has a weight averaged molecular weight (M_w) of less than or equal to 250,000 Daltons, as determined by absolute gel permeation chromatography.

~~22. The ethylene-based polymer of claim 17, wherein the ethylene-based polymer has a weight averaged molecular weight (M_w) of less than or equal to 150,000 Daltons, as determined by absolute gel permeation chromatography.~~

~~23. The ethylene-based polymer of claim 18, wherein the ethylene-based polymer has a weight averaged molecular weight (M_w) of less than or equal to 100,000 Daltons, as determined by absolute gel permeation chromatography.~~