What is claimed is:

1. A thermoplastic composition comprising:

a virgin raw polymer, wherein the virgin raw polymer comprises a hydrogenation-catalyst treated polyethylene, and the virgin raw polymer has a melt index (I_2) from 0.1 to 1.0 dg/min, a density from 0.850 to 0.940 g/cm^3, a melt index (I_{21}) from 0.1 to 50 dg/min, a melt index (I_{21}/I_2) ratio less than or equal to 18.5, a $M_{w(Abs)}/M_{n(Abs)}$ from 2.0 to 3.5, a $M_{z(Abs)}/M_{w(Abs)}$ from 1.7 to 4.5, and a cumulative detector fraction (CDF_{LS}) at a molecular weight of $\geq$ 1,000,000 g/mol of greater than 100*(0.0536 - I_{21}*0.00224)%; and

a recycled polyethylene

wherein the recycled polyethylene comprises either a first blend of polyethylenes recovered from post-consumer material, a second blend of polyethylenes recovered from pre-consumer material, or a combination of the first and second blends; and

wherein the recycled polyethylene has:

a density of from 0.900 g/cm^3 to 0.940 g/cm^3 when measured according to ASTM D792-08, Method B;

a melt index (I_2) of from 0.30 dg/min to 6.00 dg/min when measured according to ASTM D1238-10, Method B, at 190 °C and a 2.16 kg load,

wherein the virgin raw polymer is from 80 wt% to 25 wt% of the thermoplastic composition based upon a total weight of the virgin raw polymer and the recycled polyethylene, and the recycled polyethylene is from 20 to 75 wt% of the thermoplastic composition based upon the total weight of the virgin raw polymer and the recycled polyethylene.

2. The thermoplastic composition of claim 1, wherein the thermoplastic composition has a complex viscosity at 100 rad/s (190 °C) from 2500 to 3900 Pa*s.

3. The thermoplastic composition of claim 1, wherein the thermoplastic composition has a melt strength (190 °C) from 7 to 15 cN.

4. The thermoplastic composition of claim 1, wherein the thermoplastic composition has an Instrumented Dart Impact (IDI) Peak Force from 30 to 110 N.

5. The thermoplastic composition of claim 1, wherein the virgin raw polymer is an ethylene/1-hexene copolymer, an ethylene/1-butene copolymer, an ethylene/1-octene copolymer, or a combination thereof.

6. The thermoplastic composition of claim 1, wherein the recycled polyethylene has a count of defect with an equivalent circular diameter in the range of 200-400 μm (per 24.6 cm^3 of film) greater than 500, and a count of defect with an equivalent circular diameter in the range of 400-800 μm (per 24.6 cm^3 of film) greater than 250.

7. The thermoplastic composition of claim 1, wherein the recycled polyethylene has a differential scanning calorimeter (DSC) second heat of fusion of 120 J/g to 230 J/g.

8. The thermoplastic composition of claim 1, wherein the I_2 of the recycled polyethylene is greater than $k*I_2$ of the virgin raw polymer, where k is 1.0 to 30.

9. A thermoplastic composition comprising:

a virgin raw polymer, wherein the virgin raw polymer comprises a hydrogenation-catalyst treated polyethylene, and the virgin raw polymer has a melt index (I_2) from 0.1 to 1.0 dg/min, a density from 0.850 to 0.940 g/cm^3, a melt index (I_{21}) from 0.1 to 50 dg/min, an Instrumented Dart Impact (IDI) Peak Force greater than 315 Newtons, and a cumulative detector fraction (CDF_{LS}) at a molecular weight of $\geq$ 1,000,000 g/mol of greater than 4%; and

a recycled polyethylene,

wherein the recycled polyethylene comprises either a first blend of polyethylenes recovered from post-consumer material, a second blend of polyethylenes recovered from pre-consumer material, or a combination of the first and second blends; and

wherein the recycled polyethylene has:

a density of from 0.900 g/cm^3 to 0.940 g/cm^3 when measured according to ASTM D792-08, Method B;

a melt index (I_2) of from 0.30 dg/min to 6.00 dg/min when measured according to ASTM D1238-10, Method B, at 190 °C and a 2.16 kg load,

wherein the virgin raw polymer is from 80 wt% to 25 wt% of the thermoplastic composition based upon a total weight of the virgin raw polymer and the recycled polyethylene, and the recycled polyethylene is from 20 to 75 wt% of the thermoplastic composition based upon the total weight of the virgin raw polymer and the recycled polyethylene.

10. The thermoplastic composition of claim 9, wherein the virgin raw polymer has a has a cumulative detector fraction (CDF_{LS}) at a molecular weight of $\geq$ 1,000,000 g/mol of greater than $100*(0.0536 - I_{21}*0.00224)\%$.

11. The thermoplastic composition of claim 9, wherein the thermoplastic composition has a complex viscosity at 100 rad/s (190 °C) from 2500 to 3900 Pa*s, a melt strength (190 °C) from 7 to 15 cN, and an Instrumented Dart Impact (IDI) Peak Force from 30 to 110 N.

12. A method for providing select processability parameters, the method comprising:

contacting a zirconocene catalyst and a hydrogenation catalyst with ethylene and hexene in a gas-phase reactor under polymerizable conditions, wherein the zirconocene catalyst and the hydrogenation catalyst have a titanium to zirconium molar ratio from 0.100 to 0.700 to make a hydrogenation-catalyst treated polyethylene having a melt index (I_2) from 0.1 to 1.0 dg/min, a density from 0.850 to 0.940 g/cm^3, a melt index (I_{21}) from 0.1 to 50 dg/min, a melt index (I_{21}/I_2) ratio less than or equal to 18.5, a $M_{w(Abs)}/M_{n(Abs)}$ from 2.0 to 3.5, a $M_{z(Abs)}/M_{w(Abs)}$ from 1.7 to 4.5, and a cumulative detector fraction (CDF_{LS}) at a molecular weight of $\geq$ 1,000,000 g/mol of greater than $100*(0.0536 - I_{21}*0.00224)\%$; and

combining the hydrogenation-catalyst treated polyethylene with a recycled polyethylene to make a thermoplastic composition,

wherein the recycled polyethylene comprises either a first blend of polyethylenes recovered from post-consumer material, a second blend of polyethylenes recovered from pre-consumer material, or a combination of the first and second blends; and

wherein the recycled polyethylene has:

a density of from 0.900 g/cm^3 to 0.940 g/cm^3 when measured according to ASTM D792-08, Method B;

a melt index (I_2) of from 0.30 dg/min to 6.00 dg/min when measured according to ASTM D1238-10, Method B, at 190 °C and a 2.16 kg load,

wherein the hydrogenation-catalyst treated polyethylene is from 80 wt% to 25 wt% of the thermoplastic composition based upon a total weight of the hydrogenation-catalyst treated polyethylene and the recycled polyethylene, and the recycled polyethylene is from 20 to 75 wt% of the thermoplastic composition based upon the total weight of the hydrogenation-catalyst treated polyethylene and the recycled polyethylene.

13. The method of claim 12, wherein the select processability parameters comprise complex viscosity at 100 rad/s (190 °C) and melt strength (190 °C), and wherein the thermoplastic composition has a complex r viscosity at 100 rad/s (190 °C) from 2500 to 3900 Pa*sand a melt strength (190 °C) from 7 to 15 cN.