CLAIMS:

1. A method for manufacturing a polymer article comprising injecting or extruding a molten polypropylene based polymer for converting it into a semi-final or final shape, said polymer having an applied Weissenberg number of at least 0.125 for extruding and at least 0.187 for injecting and a Deborah number of at least 0.25 for extruding and at least 0.375 for injecting, wherein the polypropylene based polymer has a MFR between at least 0.3 and 100 g/10min.

2. A method for manufacturing a polymer article comprising injecting or extruding a molten polyethylene based polymer for converting it into a semi-final or final shape, said polymer having an applied Weissenberg number of at least 0.125 for extruding and at least 0.375 for injecting and a Deborah number of at least 0.25 for extruding and at least 0.75 for injecting, wherein the polyethylene based polymer has a MFR between at least 0.08 and 25 g/10min.

3. A method for manufacturing a polymer article comprising injecting or extruding a molten polyester based polymer for converting it into a semi-final or final shape, said polymer having an applied Weissenberg number of at least 0.125 for extruding and at least 0.375 for injecting and a Deborah number of at least 0.25 for extruding and at least 0.75 for injecting, wherein the polyester based polymer has a MW between 35000 and 143000 g/mol.

4. A method according to any one of claims 1 to 3 comprising selectively modifying a flow path of the molten polymer within a hot runner system, or within an extruder or die.

5. A method according to claim 4, wherein the flow path of the polymer melt is modified as a function of local pressure profile over at least part of the flow path, said local pressure profile being determined as a function of optimized response of the polymer melt to an applied local shear and/or extensional deformation over at least said part of the flow path.

6. A method according to claim 4, wherein the flow path of the polymer melt is modified as a function of local pressure profile over at least part of the flow path, said local pressure profile being determined as a function of required critical shear over at least said part of the flow path.

7. A method according to any one of claims 4 to 6 wherein the polymer results from blending or compounding a plurality of polymer materials with different MW or MFR in order to obtain a lower w1 , w1 being the cross-over point between storage modulus G'(w) and loss modulus G"(w), by spiking a high Mw fraction into a lower Mw polymer or by spiking a lower MFR fraction into a higher MFR polymer, thereby decreasing w1 without increasing either the Mw or decreasing MFR of the obtained blend or compound compared to the respective lower Mw polymer or higher MFR polymer.

8. A method according to any one of claims 1 to 2 comprising injecting or extruding the molten polymer for converting it into the semi-final or final shape while applying a shear and/or extensional deformation on the polymer melt, wherein applying shear and/or extension

deformation on the polymer melt comprises selectively modifying a flow path of the molten polymer as a function of local pressure profile over at least part of the flow path, said local pressure profile being determined as a function of optimized response of the polymer melt to the applied local shear and/or extensional deformation over at least said part of the flow path.

9. A method according to claim 8, wherein said local pressure profile also being determined as a function of required critical shear over at least said part of the flow path.

10. A method according to claim 8, wherein the polymer melt is converted at a given processing temperature, wherein said processing temperature is higher than the crystallization temperature of the polymer at ambient pressure as determined from the corresponding PVT graph of the polymer, and wherein said local pressure profile applied on the polymer melt is selected to increase the crystallization temperature towards at least the given melt processing temperature.

11. A method according to any one of claims 1 to 2 comprising injecting or extruding the molten polymer for converting it into the semi-final or final shape, wherein the polymer melt is converted at a given local pressure and a given processing temperature, wherein said processing temperature is higher than the crystallization temperature of the polymer melt at ambient pressure as determined from the corresponding PVT graph of the resin, and wherein said local pressure profile applied on the polymer melt is selected to increase the crystallization temperature towards at least the given melt processing temperature.

12. A method according to claim 10 or 11, wherein said local pressure profile applied on the polymer melt is selected to increase the crystallization temperature to at least the given melt processing temperature.

13. A method according to claim 11, wherein said given processing temperature is within a range of 5 to 40°C higher than the crystallization temperature of the polymer melt at ambient pressure as determined from the corresponding PVT graph of the resin.

14. A method according to any one of claims 11 to 13, wherein the applied local pressure is selected within a range of 0 to 500 MPa to increase the crystallization temperature of the polymer melt towards at least the given melt processing temperature.

15. A method according to any one of claims 11 to 13, wherein the applied local pressure is selected within a range of 0 to 500 MPa to increase the crystallization temperature of the polymer melt to at least the given melt processing temperature.

16. Use of a method according to any one of claims 1 to 15 in manufacturing of at least one of:

- containers for one or more food applications;
- containers for one or more non-food applications;
- any forms of injected polymer articles for use in one or more of packaging, building,

construction, automotive, electric, or electronic applications; and
- any forms of extruded polymer articles including films.