

ABSTRACT

The present invention relates to a method enabling either the selection, the modification of existing and/or the creation of newly developed polymer materials which may provide an improved response to the application of a local shear and/or extensional deformation inside the polymer melt in different manufacturing technologies such as and without being exclusive injection molding (IM), injection stretch blow molding (ISBM), direct injection (DI), extrusion blow molding (EBM), sheet extrusion, thermoforming, etc. In addition, a method for manufacturing a polymer article is provided comprising injecting or extruding a molten polypropylene, polyethylene or polyester based polymer for converting it into a (semi) final shape while applying a shear and/or extensional deformation on the polymer melt, wherein applying shear and/or extensional deformation on the polymer melt comprises selectively modifying the flow path of the molten semi-crystallizable 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.

[Figure 1]