Claims:

1. A method for extruding a poly(hydroxyalkanoate)-based material onto a packaging substrate, comprising:

extruding a molten film comprising poly(hydroxyalkanoate) through a die or slot die onto a moving web of the packaging substrate to provide a coated substrate;

treating the moving web of packaging substrate prior to the extruding step with a pre-treat process of flame treating, ozone treating, or both; and

contacting a coated side of the coated substrate with a chill roller to crystallize the molten film on the coated substrate, wherein the chill roller has a temperature ranging from about 30 ºC to about 60 ºC;

wherein the extrusion step is carried out using an ultra-low-shear, or low shear screw extruder with a compression ratio below 3.5.

2. The method of claim 1, wherein the chill roller has a temperature ranging from about 37 ºC to about 55 ºC.

3. The method of claim 1, wherein an air gap distance between the die or slot die, and the moving web of packaging material ranges from about 2.54 centimeters to less than about 20 centimeters, and more preferably from about 2.54 centimeters to about 13 centimeters.

4. The method of claim 1, wherein a coating weight of molten film on the coated substrate ranges from about 4 grams/$m^2$ to about 200 grams/$m^2$.

5. The method of claim 1, wherein a coating thickness of molten film on the coated substrate ranges from about 5 microns to about 200 microns.

6. The method of claim 1, wherein the moving web of packaging substrate has a line speed ranging from 50 to 800 meters per minute.

7. The method of claim 1, wherein the amount of poly(hydroxyalkanoate) in the molten film ranges from about 50 to about 99 weight percent based on a total weight of the molten film.

8. The method of claim 1, wherein the moving web of packaging substrate is flame treated to a temperature ranging from about 25 ºC to about 60 ºC.

9. The method of claim 1, wherein the chill roller comprises a release or non-stick coating including, but not limited to, a polytetrafluoroethylene coating configured to prevent the molten film from sticking to or wrapping around the chill roller.

10. The method of claim 9, wherein the chill roller has a surface feature selected from the group consisting of a smooth surface, a rough surface, a matte surface, and a shiny surface.

11. The method of claim 1, wherein the chill roller has a surface feature selected from the group consisting of a smooth surface, a rough surface, a matte surface, and a shiny surface.

12. The method of claim 1, wherein the extrusion step is carried out at a temperature of less than about 210 $^{o}$C.

13. The method of claim 1, wherein the compression ratio is less than 3.0.

14. A paperboard web comprising a poly(hydroxyalkanoate) coating made by the method of claim 1.

15. The method of claim 1, wherein the poly(hydroxyalkanoate)-based material includes from about 90 to 99.9 mole percent monomer residues of 3-hydroxybutyrate and from about 0.1 to about 10 mole percent monomer residues of a second 3-hydroxyalkanoate having from 5 to 12 carbon atoms