

**WHAT IS CLAIMED IS**

Claim 1. A biodegradable tubular article, wherein the tubular article is profile extrusion molded from a polymer resin comprising at least 25 weight percent of at least one biodegradable polymer.

Claim 2. The biodegradable tubular article of Claim 1, wherein the tubular article is selected from the group consisting of medical tubing, gas tubing, laboratory tubing, automotive tubing, drinking straws, and beverage stirrers.

Claim 3. The biodegradable tubular article of Claim 1, wherein the polymer resin comprises at least one biodegradable polymer selected from the group consisting of polyhydroxyalkanoates, polycaprolactone, polylactic acid, polybutylene succinate, polybutylene succinate-co-butylene adipate, polybutylene adipate terephthalate, blends of two or more of the aforementioned polymers, and reaction products of two or more of the aforementioned polymers.

Claim 4. The biodegradable tubular article of Claim 1, wherein the at least one biodegradable polymer comprises polyhydroxyalkanoates, and the polyhydroxyalkanoates comprise from about 65 to about 99.5 mole percent hydroxybutyrate moieties and from about 0.5 to about 35 mole percent hydroxyhexanoate moieties.

Claim 5. The biodegradable tubular article of Claim 1, wherein the at least one biodegradable polymer comprises polyhydroxyalkanoates having a weight average molecular weight from about 100,00 Daltons to about 7.5 million Daltons.

Claim 6. The biodegradable tubular article of Claim 1, wherein the at least one biodegradable polymer comprises a reaction product formed from reactive extrusion of polyhydroxyalkanoates and a second biodegradable polymer.

Claim 7. The biodegradable tubular article of Claim 1, wherein the at least one biodegradable polymer comprises polycaprolactone and/or polylactic acid having a weight average molecular weight from about 10,000 Daltons to about 300,000 Daltons.

Claim 8. The biodegradable tubular article of Claim 1, wherein the polymer resin comprises at least one biodegradable polymer selected from the group consisting poly(lactic acid), polybutylene succinate, polybutylene succinate adipate, polybutylene adipate terephthalate, and mixtures thereof.

Claim 9. The biodegradable tubular article of Claim 1, wherein the polymer resin further comprises from about 1 to about 50 weight percent of at least one filler selected from the group consisting of clays, calcium carbonate, talc, kaolinite, montmorillonite, bentonite, silica, chitin, titanium dioxide, nano clay, nanocellulose, mica and mixtures thereof.

Claim 10. The biodegradable tubular article of Claim 1, wherein the polymer resin further comprises from about 0.01 to about 20 weight percent of at least one nucleating agent selected from the group consisting of polyester waxes, behenamide, crodamide, stearamide, erucamide, pentaerythritol, sulfur, dipentaerythritol and mixtures thereof.

Claim 11. The biodegradable tubular article of Claim 1, wherein the polymer resin further comprises from about 1.0 to about 25 weight percent of at least one polysaccharide.

Claim 12. The biodegradable tubular article of Claim 1, wherein the polymer resin further comprises from about 0.5 to about 15 weight percent of at least one plasticizer selected from the group consisting of sebacates, citrates, fatty esters of adipic acid, fatty esters of succinic acid, fatty esters of glucaric acid, lactates, alkyl diesters, alkyl methyl esters, dibenzoates, propylene carbonate, caprolactone diols having a weight average molecular weight from about 200 to about 10,000 g/mol, polyethylene glycols having a weight average molecular weight from about 400 to about 10,000 g/mol, esters of vegetable oils, long chain alkyl acids, adipates, glycerol, isosorbide derivatives, and mixtures thereof.

Claim 13. The biodegradable tubular article of Claim 1, wherein the polymer resin further comprises from about 15 to about 35 weight percent of at least one filler, from about 1.0 to about 5.0 weight percent of at least one nucleating agent, and from about 0.01 to about 2 of at least one polymerization catalyst or initiator.

Claim 14. A method for making a biodegradable tubular article, the method comprising the steps of:

- providing a polymer resin comprising at least 25 weight percent of at least one biodegradable polymer;

- heating a charge of the polymer resin, in an extruder, to a temperature at or above the melting point of the polymer resin; and

- profile extruding the polymer resin charge through a die to form a tubular article.

Claim 15. The method of Claim 14, wherein the tubular article is selected from the group consisting of medical tubing, gas tubing, laboratory tubing, automotive tubing, drinking straws, and beverage stirrers.

Claim 16. The method of Claim 14, wherein the polymer resin comprises at least one biodegradable polymer selected from the group consisting of polyhydroxyalkanoates, polycaprolactone, polylactic acid, polybutylene succinate, polybutylene succinate-co-butylene adipate, polybutylene adipate terephthalate, blends of two or more of the aforementioned polymers, and reaction products of two or more of the aforementioned polymers.

Claim 17. The method of Claim 14, wherein the at least one biodegradable polymer comprises polyhydroxyalkanoates, and the polyhydroxyalkanoates comprise from about 65 to about 99.5 mole percent hydroxybutyrate moieties and from about 0.5 to about 35 mole percent hydroxyhexanoate moieties.

Claim 18. The method of Claim 14, wherein the at least one biodegradable polymer comprises polyhydroxyalkanoates having a weight average molecular weight from about 10,000 Daltons to about 7.5 million Daltons.

Claim 19. The method of Claim 14, wherein the at least one biodegradable polymer in the polymer resin charge comprises a reaction product formed from reactive extrusion of polyhydroxyalkanoates and a second biodegradable polymer.

Claim 20. The method of Claim 14, wherein the at least one biodegradable polymer comprises polycaprolactone and/or polylactic acid having a weight average molecular weight from about 10,000 Daltons to about 300,000 Daltons.

Claim 21. The method of Claim 14, wherein the polymer resin comprises at least one biodegradable polymer selected from the group consisting polylactic acid, polybutylene succinate, polybutylene succinate-co-butylene adipate, polybutylene adipate terephthalate, and mixtures thereof.

Claim 22. The method of Claim 14, wherein the polymer resin further comprises from about 1 to about 50 weight percent of at least one filler selected from the group consisting of clays, calcium carbonate, talc, kaolinite, montmorillonite, bentonite, silica, chitin, titanium dioxide, nano clay, nanocellulose, and mixtures thereof.

Claim 23. The method of Claim 14, wherein the polymer resin further comprises from about 0.5 to about 20 weight percent of at least one nucleating agent selected from the group consisting of polyester waxes, behenamide, crodamide, stearamide, erucamide, pentaerythritol, dipentaerythritol, sulfur and mixtures thereof.

Claim 24. The method of Claim 14, wherein the polymer resin further comprises from about 1.0 to about 25 weight percent of at least one polysaccharide.

Claim 25. The method of Claim 14, wherein the polymer resin further comprises from about 0.5 to about 15 weight percent of at least one plasticizer selected from the group consisting of sebacates, citrates, fatty esters of adipic acid, fatty esters of succinic acid, fatty esters of glucaric acid, lactates, alkyl diesters, alkyl methyl esters, dibenzoates, propylene carbonate, caprolactone diols having a weight average molecular weight from about 200 to about 10,000 g/mol, polyethylene glycols having a weight average molecular weight from about 400 to about 10,000 g/mol, esters of vegetable oils, long chain alkyl acids, adipates, glycerol, isosorbide derivatives, and mixtures thereof.

Claim 26. The method of Claim 14, wherein the polymer resin further comprises from about 15 to about 35 weight percent of at least one filler, from about 1.0 to about 5.0 weight percent of at least one nucleating agent, and from about 0.01 to about 2 of at least one polymerization catalyst or initiator.

Claim 27. A method for making a biodegradable food service item, the method comprising the steps of:

- providing a polymer resin comprising at least 25 weight percent of a first and a second biodegradable polymer;

- heating a charge of the polymer resin to a temperature at or above the melting point of the polymer resin; and

- molding a food service item from the polymer resin charge.

Claim 28. The method of Claim 27, wherein the biodegradable food service item comprises an eating utensil, beverage splash stick, cocktail pick, or toothpick.

Claim 29. The method of Claim 27, wherein the at least one biodegradable polymer in the polymer resin charge comprises a reaction product formed from reactive extrusion of the first and the second biodegradable polymers.