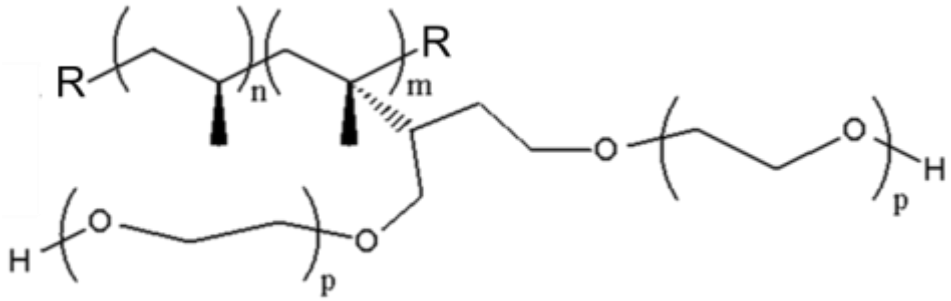
Claims:

1. A tubing for a medical device formed from a blend comprising:
a base polymeric formulation comprising at least a polymer or co-polymer of ethylene or propylene and excluding free poly(ethylene oxide); and
an additive comprising a polypropylene-poly(ethylene oxide) amphiphilic graft copolymer (PP-*g*-PEO);
the PP-*g*-PEO being present in the blend in an amount in the range of 0.01 to 5.0 % by weight of the blend.

2. The tubing of claim 1, wherein the PP-*g*-PEO is according to Formula (I):



(I),

wherein R is hydrogen, alkyl, substituted alkyl, vinylic substituted alkyl, hydrocarbyl, substituted hydrocarbyl, or vinylic substituted hydro-carbyl group; the molar percentages of grafted maleic anhydride units, m, is in the range from 2 to 10 mole percent; the molar values of propylene units, n, is in the range from 98 to 90 mole percent, and p is in the range of 5 to 500 ethylene oxide units.

3. The tubing of claim 1 or 2, wherein the base polymeric formulation comprises polyethylene, polypropylene, a polypropylene-maleic anhydride co-polymer, a polyethylene-polypropylene co-polymer, a polyethylene- and/or polypropylene-containing thermoplastic elastomer (TPE), or combinations thereof, preferably wherein the polyethylene-and/or polypropylene-containing

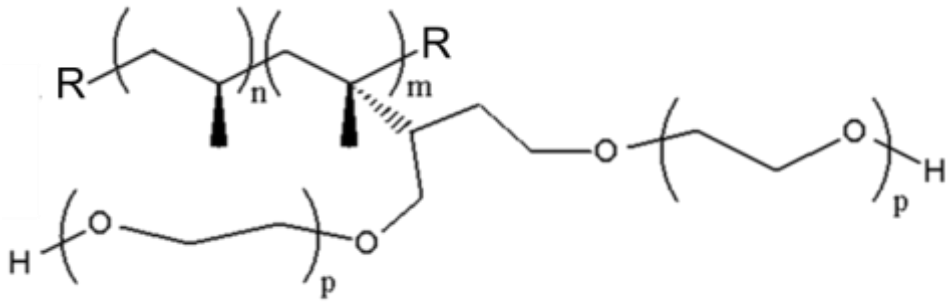
thermoplastic elastomer (TPE) comprises at least 60 mol % total polyethylene and/or polypropylene.

4. The tubing of anyone of claims 1 to 3, wherein the PP-*g*-PEO is a product of ethylene oxide ring-opening polymerization of a polypropylene-maleic anhydride co-polymer (PP-MA) having from 10-50 weight percent of maleic anhydride.

5. The tubing of anyone of claims 1 to 4, wherein the PP-*g*-PEO has a dispersity index in the range of 2 to 10.

6. A medical device comprising:

a tubing comprising a polymeric blend comprising a base polymeric formulation comprising at least a polymer or co-polymer of ethylene or propylene and excluding free poly(ethylene oxide), and an additive comprising a polypropylene-poly(ethylene oxide) amphiphilic graft copolymer (PP-*g*-PEO) according to Formula (I):



(I),

wherein R is hydrogen, alkyl, substituted alkyl, vinylic substituted alkyl, hydrocarbyl, substituted hydrocarbyl, or vinylic substituted hydrocarbyl group; the molar percentages of grafted maleic anhydride units, m, is in the range from 2 to 10 mole percent; the molar values of propylene units, n, is in the range from 98 to 90 mole percent, and p is in the range of 5 to 500 ethylene oxide units;

wherein the PP-*g*-PEO is present in the blend in an amount in the range of 0.01 to 5.0 % by weight of the blend; and

a connector bonded to the tubing;

wherein the PP-*g*-PEO is effective to enhance bonding of the tubing to a connector.

7. The medical device of claim 6, wherein the base polymeric formulation comprises polyethylene, polypropylene, a polyethylene-polypropylene co-polymer, a polyethylene- and/or polypropylene-containing thermoplastic elastomer (TPE), or combinations thereof, preferably wherein the polyethylene- and/or polypropylene-containing thermoplastic elastomer (TPE) comprises at least 60 mol % polyethylene and/or polypropylene.

8. The medical device of claim 6 or 7, wherein the PP-*g*-PEO is a product of ethylene oxide ring-opening polymerization of a polypropylene-maleic anhydride co-polymer (PP-MA) having from 10-50 weight percent of maleic anhydride.

9. The medical device of anyone of claims 6 to 8, wherein the connector comprises a polar material, preferably wherein the polar material selected from the group consisting of: poly(methyl methacrylate) (PMMA), styrene maleic anhydride (SMA), polycarbonate (PC), and methyl methacrylate–acrylonitrile-butadiene–styrene (MABS).

10. The medical device of anyone of claims 6 to 9, wherein the connector is solvent-bonded to the tubing.

11. A method of making a medical device comprising:

obtaining a polypropylene-poly(ethylene oxide) amphiphilic graft copolymer (PP-*g*-PEO);

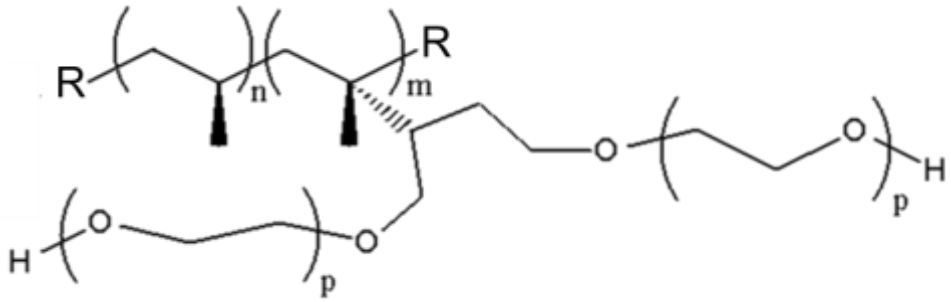
combining the PP-*g*-PEO with a base polymeric formulation comprising at least a polymer or co-polymer of ethylene or propylene and excluding free poly(ethylene oxide) to form a blend, the PP-*g*-PEO being present in the blend in an amount in the range of 0.01 to 5.0 % by weight of the blend;

forming a tubing from the blend;

bonding the tubing to a connector in the presence of a solvent to form the medical device;

wherein the PP-*g*-PEO is effective to enhance bonding of the tubing to a connector.

12. The method of claim 11, wherein ethylene oxide ring-opening polymerization of a polypropylene-maleic anhydride co-polymer (PP-MA) having from 10-50 weight percent of maleic anhydride is used to form the PP-*g*-PEO, which is according to Formula (I):



(I),

wherein R is hydrogen, alkyl, substituted alkyl, vinylic substituted alkyl, hydrocarbyl, substituted hydrocarbyl, or vinylic substituted hydrocarbyl group; the molar percentages of grafted maleic anhydride units, m, is in the range from 2 to 10 mole percent; the molar values of propylene units, n, is in the range from 98 to 90 mole percent, and p is in the range of 5 to 500 ethylene oxide units.

13. The method of claim 11 or 12, wherein the base polymeric formulation comprises polyethylene, polypropylene, a polyethylene-polypropylene co-polymer, a polyethylene- and/or polypropylene-containing thermoplastic elastomer (TPE), or combinations thereof, preferably wherein the polyethylene- and/or polypropylene-containing thermoplastic elastomer (TPE) comprises at least 60 mol % polyethylene and/or polypropylene.