CLAIMS

1. A method of manufacturing a catheter configured to release nitric oxide and chlorhexidine to provide anti-platelet and antimicrobial properties, comprising:

impregnating a thermoplastic polyurethane catheter extrusion with a nitric oxide releasing compound and with chlorhexidine; and

coating the impregnated catheter extrusion with a polyurethane coating comprising chlorhexidine.

2. The method of claim 1, wherein the impregnated nitric oxide releasing compound is selected from s-nitroso-n-acetylpenicillamine (SNAP), s-nitrosoglutathione (GSNO), and mixtures thereof.

3. The method of claim 1, wherein the impregnating step comprises:

obtaining the nitric oxide releasing compound and chlorhexidine dissolved in a solvent; and

exposing the thermoplastic polyurethane catheter extrusion to the nitric oxide releasing compound and chlorhexidine dissolved in a solvent; and

evaporating the solvent from the catheter extrusion.

4. The method of claim 3, wherein the chlorhexidine dissolved in a solvent is selected from chlorhexidine diacetate, chlorhexidine base, chlorhexidine gluconate, and mixtures thereof.

5. The method of claim 3, wherein the solvent comprises methanol, acetone, and methyl ethyl ketone (MEK).

6. The method of claim 5, wherein the solvent comprises from 20 to 25 vol.% methanol, from 17.5 to 77.5 vol.% acetone, and the balance vol.% methyl ethyl ketone (MEK).

7. The method of claim 1, wherein the polyurethane coating further comprises a nitric oxide releasing compound.

8. The method of claim 1, wherein the coating step comprises dipping the catheter extrusion into a polymer solution comprising polyurethane and chlorhexidine dissolved in a solvent.

9. The method of claim 8, wherein the polymer solution further comprises a nitric oxide releasing compound

10. The method of claim 9, wherein the nitric oxide releasing compound is selected from s-nitroso-n-acetylpenicillamine (SNAP), s-nitrosoglutathione (GSNO), and mixtures thereof.

11. The method of claim 8, wherein the polyurethane comprises an aliphatic polyurethane.

12. The method of claim 8, wherein the polyurethane comprises an aromatic polyurethane.

13. The method of claim 8, wherein the chlorhexidine concentration in the dip-coating solution ranges from 0.5 wt.% to 20 wt.%.

14. The method of claim 8, wherein the solvent comprises methanol and dioxolane.

15. The method of claim 14, wherein solvent comprises from 10 vol.% to 25 vol.%, methanol and from 75 vol.% to 90 vol.% dioxolane.