CLAIMS

1. A catheter tubing comprising:

an elongate body comprising a base thermoplastic polyurethane; and

a compounded thermoplastic polyurethane co-extruded with the base thermoplastic polyurethane to provide a section of catheter tubing discrete from the elongate body, the compounded thermoplastic polyurethane comprising a thermoplastic polyurethane and a radiopaque material;

wherein the catheter tubing comprises a first elastic modulus under first conditions prior to entry into a patient;

wherein when exposed to second conditions comprising two or more *in vivo* stimuli for a time, the catheter tubing comprises a second elastic modulus that is not more than fifty percent of the first elastic modulus; and

wherein the first elastic modulus is a minimum of 1300 MPa.

2. The catheter tubing of claim 1, wherein the thermoplastic polyurethane of the compounded thermoplastic polyurethane is a different formulation from the base thermoplastic polyurethane.

3. The catheter tubing of claim 1, wherein the section discrete from the elongate body comprises one or more elongate stripes comprising the compounded thermoplastic polyurethane, integrally formed with the elongate body.

4. The catheter tubing of claim 1 having a cross-sectional area that comprises the base thermoplastic polyurethane in an amount in the range of 60% to 80% and the compounded thermoplastic polyurethane in an amount in the range of 20% to 40%.

5. The catheter tubing of claim 1, wherein the first conditions comprise: a temperature in a range of 20 to 30°C and a relative humidity in a range of 0 to 90%.

6. The catheter tubing of claim 1, wherein the first elastic modulus is the range of 1300 to 2200 MPa.

7. The catheter tubing of claim 1, wherein the two or more *in vivo* stimuli of the second conditions comprise a temperature in the range of about 36 to about 40°C, and one or more of:

saline, plasma, white blood cells, platelets, red blood cells, water, absence of light, antibodies, and enzymes.

8. The catheter tubing of claim 1, wherein the second elastic modulus is a maximum of 650 MPa.

9. The catheter tubing of claim 8, wherein the second elastic modulus is the range of 10 to 650 MPa.

10. The catheter tubing of claim 1, wherein the second elastic modulus is reached after exposure to the second conditions for about 30 minutes or less.

11. The catheter tubing of claim 10, wherein the second elastic modulus is reached after exposure to the second conditions for about 5 to about 10 minutes.

12. The catheter tubing of claim 1, wherein the radiopaque material of the compounded thermoplastic polyurethane comprises bismuth oxychloride (BiOCl), bismuth trioxide (Bi_2O_3), bismuth subcarbonate ($Bi_2O_2CO_3$), barium sulfate ($BaSO_4$), tungsten (W), or combinations thereof.

13. The catheter tubing of claim 1, wherein the base thermoplastic polyurethane, the compounded thermoplastic polyurethane, or both further comprise an antithrombogenic agent, an antimicrobial agent, a lubricant, a colorant, an active pharmaceutical, or combinations thereof.

14. A vascular access device comprising the catheter tubing of claim 1 in combination with one or more components, wherein the vascular access device is selected from the group consisting of: a central venous catheter, a peripherally-inserted central catheter, a midline catheter, and a peripheral intravenous catheter.

15. The catheter tubing of claim 1, wherein the base thermoplastic polyurethane is a product from a reaction of: a diisocyanate, a diol chain extender, at least one polyglycol, and optionally, an amine-terminated polyether.

16. A catheter tubing comprising:

an elongate body comprising a base thermoplastic polyurethane that is a product from a reaction of: a diisocyanate, a diol chain extender, and at least one polyglycol, and optionally further, an amine-terminated polyether; and optionally the base

thermoplastic polyurethane further comprises an antithrombogenic agent, an antimicrobial agent, a lubricant, a colorant, an active pharmaceutical, or combinations thereof; and

one or more elongate stripes co-extruded with the base thermoplastic polyurethane, the elongate stripes comprising a compounded thermoplastic polyurethane comprising a thermoplastic polyurethane and a radiopaque material;

wherein the catheter tubing comprises a first elastic modulus under first conditions prior to entry into a patient; and

wherein when exposed to second conditions comprising two or more *in vivo* stimuli for a time, the catheter tubing comprises a second elastic modulus that is not more than fifty percent of the first elastic modulus; and

wherein the first elastic modulus is the range of 1300 to 2200 MPa.

17. The catheter tubing of claim 16, wherein the first conditions comprise: a temperature in a range of 20 to 30°C and a relative humidity in a range of 0 to 90% and the two or more *in vivo* stimuli of the second conditions comprise a temperature in the range of about 36 to about 40°C, and one or more of: saline, plasma, white blood cells, platelets, red blood cells, water, absence of light, antibodies, and enzymes.

18. The catheter tubing of claim 16, wherein the second elastic modulus is the range of 10 to 650 MPa.

19. The catheter tubing of claim 16, wherein the second elastic modulus is reached after exposure to the second conditions for about 30 minutes or less.

20. The catheter tubing of claim 19, wherein the second elastic modulus is reached after exposure to the second conditions from about 5 to about 10 minutes.

21. The catheter tubing of claim 16, wherein the at least one polyglycol is a polytetramethylene ether glycol (PTMEG).