WHAT IS CLAIMED IS:

1. A downhole sealing device, comprising:

one or more downhole sealing features; and

an elastomeric element comprising a thiourethane/acrylate polymer coupled to the one or more downhole sealing features, the elastomeric element operable to be compressed in a downhole application against a tubular, wherein the elastomeric element is a 3D printed element manufactured using a VAT resin formed using a liquid mixture including:

a crosslinking component;

at least one monomer and/or oligomer; and

a chain transfer agent comprising at least one of a thiol, a secondary alcohol, and/or a tertiary amine, wherein the resin is configured to react by exposure to light to form a cured solid material.

2. The downhole sealing device as recited in Claim 1, wherein the thiourethane/acrylate polymer is a thiourethane polymer.

3. The downhole sealing device as recited in Claim 1, wherein the thiourethane/acrylate polymer is a thiolacrylate polymer.

4. The downhole sealing device as recited in Claim 1, wherein the thiourethane/acrylate polymer is a blended combination of a thiourethane polymer and a thiolacrylate polymer.

5. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 6,900 kPa of pressure differential at a temperature of at least 80°C.

6. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 20,700 kPa of pressure differential at a temperature of at least 80°C.

7. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 20,700 kPa of pressure differential at temperatures as low as -65 °C and as high as 270°C.

8. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 27,575 kPa pressure differential at temperatures of at least 80°C.

9. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 27,575 kPa of pressure differential at temperatures as low as -65 °C and as high as 270°C.

10. The downhole sealing device as recited in Claim 1, wherein the elastomeric element has a fracture toughness of at least 40 MJ/m^3 and a tensile strength of at least 25 MPa.

11. The downhole sealing device as recited in Claim 1, wherein the one or more downhole sealing features are first and second end plates coupled to opposing ends of the elastomeric element, the first and second end plates configured to move with respect to one another to axially compress the elastomeric element to engage the tubular.

12. The downhole sealing device as recited in Claim 11, wherein the elastomeric element and first and second end plates are positioned between first and second anti-extrusion devices, the first and second anti-extrusion devices configured to expand in diameter when subjected to an axial compressive force such that the elastomeric element cannot deform axially past the first and second end plates.

13. The downhole sealing device as recited in Claim 1, wherein the one or more downhole sealing features are a single metal sealing feature having a groove located therein, and further wherein the elastomeric element is an O-ring positioned within the groove.

14. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is a single element.

15. The downhole sealing device as recited in Claim 1, wherein the elastomeric element is a 3D printed element manufactured using a VAT resin formed using a liquid mixture including:

a first type of monomer including two or more thiol functional groups;

a second type of monomer including two or more isocyanate functional groups;

a photolatent base, wherein the photolatent base is decomposable upon exposure to a light to form a non-nucleophillic base catalyst having a pKa greater than 7;

an anionic step-growth polymerization reaction inhibitor, the inhibitor having an acidic group configured to form an acid-base pair with the non-nucleophillic base catalyst; and

a light absorber having an absorbance in the liquid mixture that is greater than an absorbance of the photolatent base at a wavelength of the light used for the exposure.

16. A well system, comprising:

a wellbore located in a subterranean formation; and

a downhole sealing device positioned within the wellbore, the downhole sealing device including:

one or more downhole sealing features; and

an elastomeric element comprising a thiourethane/acrylate polymer coupled to the one or more downhole sealing features, the elastomeric element operable to be compressed against a surface in the wellbore, wherein the elastomeric element is a 3D printed element manufactured using a VAT resin formed using a liquid mixture including:

a crosslinking component;

at least one monomer and/or oligomer; and

a chain transfer agent comprising at least one of a thiol, a secondary alcohol, and/or a tertiary amine, wherein the resin is configured to react by exposure to light to form a cured solid material.

17. The well system as recited in Claim 16, wherein the elastomeric element is operable to be compressed in the downhole application against the tubular and operable to seal at least 6,900 kPa of pressure differential at a temperature of at least 80°C.

18. The well system as recited in Claim 16, wherein the surface in the wellbore is wellbore casing.

19. The well system as recited in Claim 16, wherein the one or more downhole sealing features are first and second end plates coupled to opposing ends of the elastomeric element, the first and second end plates configured to move with respect to one another to axially compress the elastomeric element to engage the surface in the wellbore.

20. The well system as recited in Claim 19, wherein the elastomeric element and first and second end plates are positioned between first and second anti-extrusion devices, the first and second anti-extrusion devices configured to expand in diameter when subjected to an axial compressive force such that the elastomeric element cannot deform axially past the first and second end plates.

21. The well system as recited in Claim 16, wherein the one or more downhole sealing features are a single metal sealing feature having a groove located therein, and further wherein the elastomeric element is an O-ring positioned within the groove.

22. The well system as recited in Claim 16, wherein the elastomeric element is a 3D printed element manufactured using a VAT resin formed using a liquid mixture including:

a first type of monomer including two or more thiol functional groups;

a second type of monomer including two or more isocyanate functional groups;

a photolatent base, wherein the photolatent base is decomposable upon exposure to a light to form a non-nucleophillic base catalyst having a pKa greater than 7;

an anionic step-growth polymerization reaction inhibitor, the inhibitor having an acidic group configured to form an acid-base pair with the non-nucleophillic base catalyst; and

a light absorber having an absorbance in the liquid mixture that is greater than an absorbance of the photolatent base at a wavelength of the light used for the exposure.

23. The well system as recited in Claim 16, wherein the downhole sealing device is a first downhole sealing device, and further including a second downhole sealing device positioned proximate the first downhole sealing device.

24. The well system as recited in Claim 23, wherein the second downhole sealing device comprises a polymeric material different from the thiourethane/acrylate polymer.

25. A method for sealing within a wellbore, comprising:

positioning a downhole sealing device within a wellbore located within a subterranean formation, the downhole sealing device including:

one or more downhole sealing features; and

an elastomeric element comprising a thiourethane/acrylate polymer coupled to the one or more downhole sealing features, wherein the elastomeric element is a 3D printed element manufactured using a VAT resin formed using a liquid mixture including:

a crosslinking component;

at least one monomer and/or oligomer; and

a chain transfer agent comprising at least one of a thiol, a secondary alcohol, and/or a tertiary amine, wherein the resin is configured to react by exposure to light to form a cured solid material; and

subjecting the elastomeric element to an axial compressive force, the axial compressive force compressing the elastomeric element against a surface in the wellbore.

26. The method as recited in Claim 25, wherein the compressed elastomeric element is operable to seal at least 6,900 kPa of pressure differential at a temperature of at least 80°C.

27. The method as recited in Claim 25, wherein the one or more downhole sealing features are first and second end plates coupled to opposing ends of the elastomeric element, and further wherein subjecting the elastomeric element to an axial compressive force includes moving the first and second end plates with respect to one another to axially compress the elastomeric element to engage the surface in the wellbore.

28. The method as recited in Claim 25, wherein the one or more downhole sealing features are a single metal sealing feature having a groove located therein, the elastomeric element being an O-ring positioned within the groove, and further wherein subjecting the elastomeric element to an axial compressive force includes subjecting the O-ring to fluid pressure to axially compress the elastomeric element to engage the surface in the wellbore.

29. The method as recited in Claim 25, further including 3D printing the elastomeric element using a VAT resin formed using a liquid mixture including:

a first type of monomer including two or more thiol functional groups;

a second type of monomer including two or more isocyanate functional groups;

a photolatent base, wherein the photolatent base is decomposable upon exposure to a light to form a non-nucleophillic base catalyst having a pKa greater than 7;

an anionic step-growth polymerization reaction inhibitor, the inhibitor having an acidic group configured to form an acid-base pair with the non-nucleophillic base catalyst; and

a light absorber having an absorbance in the liquid mixture that is greater than an absorbance of the photolatent base at a wavelength of the light used for the exposure.