CLAIMS

What is claimed is:

1. An oral care device or component, comprising:

an additive-manufactured thermoplastic polyurethane composition derived from (a) a polyisocyanate component comprising an aromatic diisocyanate; (b) a chain extender component; wherein the composition is free of polyol components other than the chain extender component.

2. The oral care device or component of claim 1, wherein the chain extender component comprises 1,6-hexanediol (HDO), 1,4-cyclohexane dimethanol (CHDM) or combinations thereof.

3. The oral care device or component claim 1, wherein the aromatic diisocyanate comprises MDI.

4. The oral care device or component of claim 1, wherein the additive manufacturing comprises fused deposition modeling or selective laser sintering.

5. The oral care device or component of claim 1, wherein the thermoplastic polyurethane is biocompatible.

6. The oral care device or component of claim 1, wherein the chain extender component is from 25 wt% to 35 wt% of the total weight of the composition.

7. The oral care device or component of claim 1, wherein the polyisocyanate component further comprise TDI, IPDI, LDI, BDI, PDI, CHDI, TODI, NDI, HXDI or any combination thereof.

8. The oral care device or component of claim 1, wherein the thermoplastic polyurethane further comprises one or more colorants, antioxidants (including phenolics, phosphites, thioesters, and/or amines), radio opacifiers, stabilizers, lubricants, inhibitors, hydrolysis stabilizers, light stabilizers, hindered amine light stabilizers, benzotriazole UV absorber, heat stabilizers, stabilizers to prevent discoloration, dyes, pigments, reinforcing agents, or any combinations thereof.

9. The oral care device or component of claim 1, wherein the oral care device or component comprises one or more of a dental aligner, a dental retainer or an orthodontic device.

10. The oral care device or component of claim 9, wherein the oral care device or component is personalized to a patient.