



Supporting Information

Article

Influence of Exposure Period and Angle Alteration on the Flexural Resilience and Mechanical Attributes of Photosensitive Resin

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Supporting Information

- 3D-printed PSR strain (ϵ_{FB} & ϵ_{FM}) Analysis
- Figure S1

3D Printed PSR Strain (ϵ_{FB} & ϵ_{FM}) Analysis

Figure S1 represents the flexural strain ϵ_{FB} displaying the strain specimens underwent before breaking and flexural strain ϵ_{FM} : the specimens' behavior at maximum flexural stress ϵ_{FM} at various oblique angles. At E = 10s and fabrication angles 0°, 15°, and 75°, the specimens experienced maximum flexural strain before permanent deformation and $\epsilon_{FM} = \epsilon_{FB}$. The minimum flexural strain was observed at OA 70°. Specimens underwent almost similar $\epsilon_{FM} = \epsilon_{FB}$ at all the OA, as clearly identified in the flexural strain graphs displayed in Figure S1. At E = 20s, the rings fabricated at mid-OA (40°, 50°, 55°, 60°, 65°), HA (75°), and LA (25°) specimens underwent brittle failure before permanent deformation, having $\epsilon_{FM} = \epsilon_{FB}$ with the lowest strain of 3.6% at angles 25° and 60°. At all other OA, the rings underwent viscoelastic deformation with varying ϵ_{FM} and ϵ_{FB} (Figure S1b). At E = 30s and 40 s, the minimum $\epsilon_{FM} = \epsilon_{FB} > 1.7\sim 1.05\%$ was observed at OA=80°. The rings underwent viscoelastic deformation with varying ϵ_{FM} and ϵ_{FB} at other angles. Specimens with brittle failures had $\epsilon_{FM} = \epsilon_{FB}$. All other specimens showing viscoelastic deformation or viscoplastic failures had varying flexural strain at break (Figure S1 (c and d)). In the case of E = 50 s, again, the rings underwent maximum flexural strain of 8.8% before going to permanent deformation at 55°: $\epsilon_{FM} = 7.18\%$.

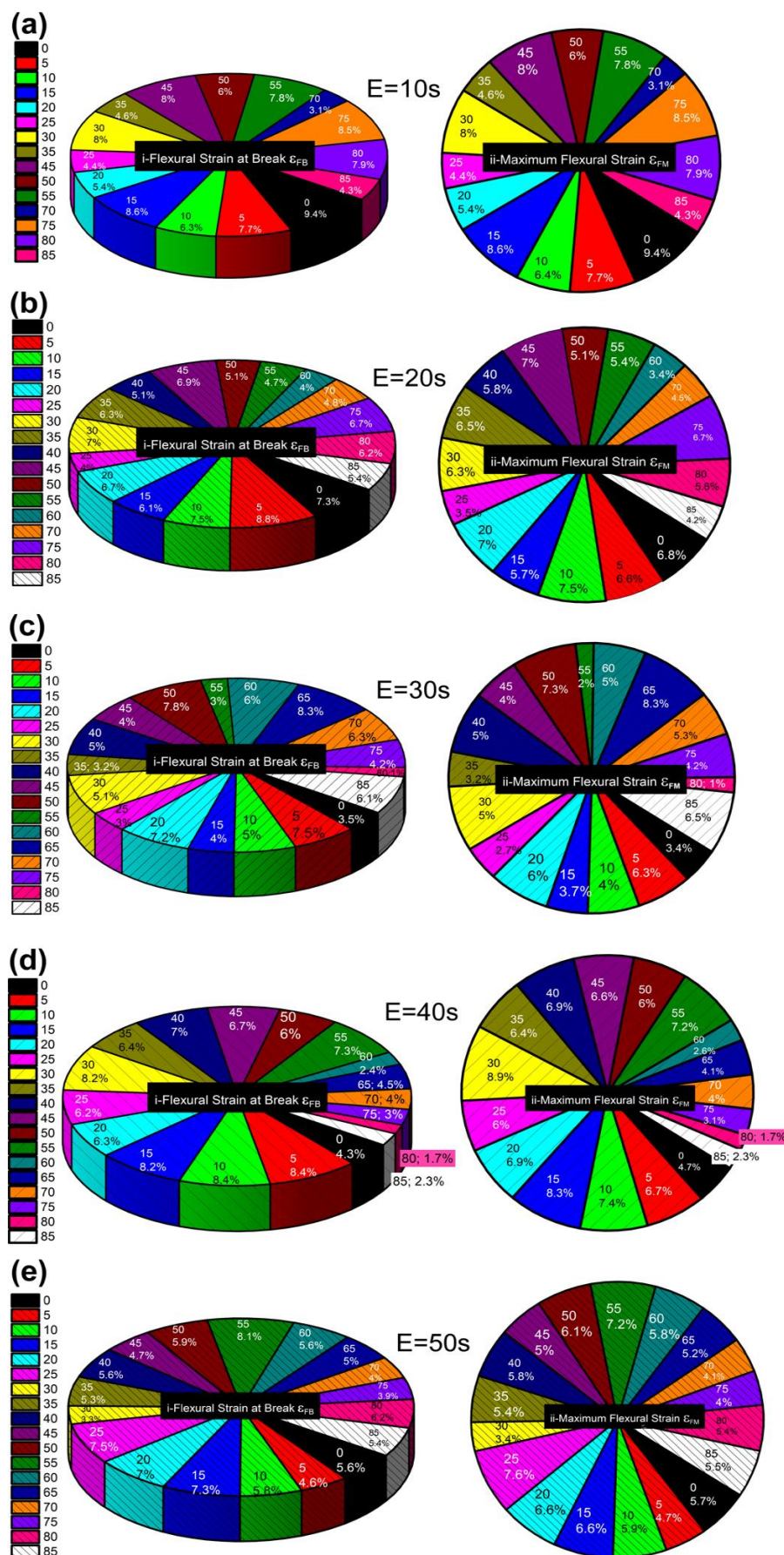


Figure S1. Flexural strain at break (i- ϵ_B) and maximum flexural strain (ii- ϵ_M) graphs of fabricated rings at (a) E = 10 s, (b) E = 20 s, (c) E = 30 s, (d) E = 40 s, and (e) E = 50s at different OA.