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[\[PDF \(433K\)\]](#) [\[References\]](#)**Influence of Irradiation Time on Volumetric Shrinkage and Flexural Properties of Flowable Resins**

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Abstract:

The purpose of this study was to evaluate the influence of irradiation time on volumetric change and flexural properties of flowable resins. Four commercially available flowable resins were employed. For volumetric shrinkage measurement, resin pastes were inserted into a mold (2 mm in height, 4 mm in diameter) and put into a water-filled dilatometer. This was followed by light irradiation for 10, 20, or 30 seconds at 600 mW/cm². Volumetric shrinkage of the specimens was then determined from the change in the height of water meniscus, and the percentage volumetric change thereof was calculated. For flexural strength measurement, resin pastes were filled into a stainless steel mold (25×2×2 mm), and the middle one-third of the specimen was first irradiated. The remaining two-thirds were irradiated under the same irradiation conditions as volumetric shrinkage measurement. After 24-hour storage in 37°C water, three-point flexural tests were performed with a span length of 20 mm at a crosshead speed of 1.0 mm/min. One-way ANOVA followed by Tukey's HSD test were used for statistical analysis. For all materials tested except Estelite Flow Quick, both volumetric shrinkage and flexural strength increased with longer light irradiation time. Results of this study indicated that both volumetric shrinkage and flexural properties were influenced by light irradiation time and resin composite type.

Key words:

[Flowable resin](#), [Volumetric shrinkage](#), [Flexural strength](#)

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