# Storage Temperature Effect on Degree of Polymerization and Surface Hardness of Bulk-Fill Composite Resin

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**Abstract**

The objective of the study was to evaluate the effect of storage temperature on degree of polymerization and surface hardness of bulk-fill composite resin by storing it for 24 h at three different temperatures before testing: at 5°C, at 25°C, and at 35°C. Thirty-six specimens of composite resin were placed into a Fourier transform infrared spectrometer to analyze degree of polymerization; another 24 specimens of resin were tested for hardness using a hardness tester.

By analyzing results with a one-way ANOVA and LSD post hoc test, we determined that temperature did not significantly affect degree of polymerization, but hardness significantly differed between treatments when compared using a Vicker's hardness number (VHN). The highest mean VHN occurred at 35°C (VHN = 53.86 ± 0.79), followed by 25°C (VHN = 51.94 ± 0.41), and the lowest at 5°C (VHN = 49.22 ± 0.57). Therefore, elevating the storage temperature of bulk-fill composite resin before use may not affect degree of polymerization but will increase surface hardness.

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