

Influence of Different Temperatures on the Polymerization Pre- and Post-Cured of Various Resin Materials

Abstract:

Objective: To evaluate and compared the effect of different temperatures (5°C, 37°C and room temp. $\pm 23^\circ\text{C}$) pre- cured and post-cured for three universal- Chroma composite materials (Hybrid-Nano fillers, Supra-Nano, Nano filler) on the polymerization degree and micro-hardness.

Materials: A seventy-five disc-samples-shaped were fabricated from (Omnichroma, ViNra APS, DenFil for each test in different temperatures (5°C, 37°C and room temp. $\pm 23^\circ\text{C}$) were light cured according to manufacture instruction. The Fourier transform infrared spectroscopy was used to the polymerization degree measured for each sample while the micro-hardness was measured by the using of Vickers hardness test. Data were analyzed using One-Way-Analysis of Variance at level $p < 0.05$.

Results: The analysis showed that there was significant difference in the polymerization degree and in the micro-hardness of the samples fabricated at the different temperatures when heated pre- and postcured of all materials increase, in the polymerization degree and the micro-hardness of the samples.

Conclusions: Increasing three universal- Chroma composite materials (Hybrid-Nano fillers, Supra-Nano, Nano filler) temperature whether pre-cured and post-cured allows for maintaining or increasing polymerization degree and hardness of three universal- Chroma composite materials especially DenWILN Nano- filler composite.