

0605 Effect of Repeated and Extending Heating on Conversion of Composites

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OBJECTIVES: This research determined if repeated or extended temperature cycling (pre-heating and cooling) reduces composite monomer conversion. **METHODS:** Three conventional composites representing a variety of filler loading and type were used: hybrid (Esthet•X); nanofilled hybrid (Filtek Supreme); and packable (Prodigy Condensable). Compules (n=5) were submitted to one of the following temperatures cycles (CalSet™): Room temperature (control – no heating); Repeated heating (10 replications of heating from room temperature (RT) to 60°C for 15 minutes and back to RT), or Extended heating (24h from RT to 60°C). Twenty-four hours after cycling, uncured composite (now all at RT) was placed on an attenuated-total-reflectance unit, covered with a Mylar sheet, pressed into a thin, flat disc, and exposed for 20s using a conventional quartz-tungsten-halogen curing unit (Optilux 501) with the distal tip end secured 1mm from the Mylar surface. Infrared spectra were obtained using 16 scans at a resolution of 2 cm⁻¹ 5 min after light initiation. Five replications for each test condition were performed. Monomer conversion was calculated from infrared spectra and values were compared using ANOVA and the Tukey-Kramer post-hoc test (alpha = 0.05). **RESULTS:** Table presents conversion values (SD), row values with same letter are statistically equivalent.

	Room temperature	Repeated (10x)	Extended (24h)
Esthet•X	53.6 (0.9) ^a	54.0(0.6) ^a	53.9(0.4) ^a
Prodigy	58.4(0.3) ^b	58(1.5) ^b	58.7(0.6) ^b
Supreme	53.5(0.6) ^c	52.3(0.8) ^c	53.7(0.5) ^c

CONCLUSION: Neither repeated nor extended heating of composites significantly affected monomer conversion values. Supported in part by CAPES (grant 03/48031).

[Seq #91 - Composite Resin--Heating Effects, Fiber Reinforcement](#)

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