

Surface hardness of plasma arc light activated resin composite of Various thickness.

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Hardness measurement is an effective way to evaluate the degree of composite cure. In this study the microhardness values of top and bottom surfaces of composite disc samples polymerized by plasma arc curing (PAC) light, were evaluated and compared with conventional quartz tungsten halogen (QTH) light. Five composite samples 6mm in sdiameter with variable thickness of Imm, 2mm, 3mm, and 4mm were cured with (QTH) and five for (PAC) were cured for I sec, 2 sec, and 3 sec. Surface microhardness measurements were carried out using a calibrated Rockwell B indicator on both top and bottom surface, after storage in a black box for 24 hours. Multiple analysis of variance and corresponding F- test was used to analyze the differences between means of the tested groups and unpaired two way analysis of variance was used to determine the significantly different group. The QTH yielded higher hardness values for all surfaces, top and bottom, compared with PAC. The groups of PAC top surface had the highest hardness value in relation to bottom. As the thickness increased the hardness value decreased. Having an uncured bottom surface at the 3mm and 4mm samples. Conclusively when compared with conventional QTH unit, the PAC light

curing time, which the manufacturer recommended was insufficient for optimal curing of composites.

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