

Abstract

Assessment of the Effect of Accelerated Aging on the Color Stability of blend effect and microhybrid resin composites.

Introduction: Some studies emphasize that the biggest current challenge for composites is to maintain and enhance the factors associated with tooth color coordination and restorative composites. One of the latest developments is the introduction of blend effect composites. The aim of this study was to investigate the changes in surface roughness of blend effect composites due to accelerated aging.

Materials and Methods: 36 composite disks were prepared from two types of composites with blend effect and conventional properties and from three shades bw, A2 and xbw. The color stability of the composites was investigated three time: 24 hours after preparing samples, before and after accelerated aging with a spectrophotometer. Accelerated aging included 2000 thermocycle cycles. T-test was used to compare changes in surface roughness in a group. ANOVA test was used to compare the changes in surface roughness in the two groups.

Results: A comparison of the mean of the total color changes of the discs shows that in all shades the change of color factors occurred due to accelerated aging. These changes were below $\Delta E = 3/3$ it means that they were clinically undetectable. Also, XBW shade of gradia group and BW shade of Solafil group did not show color change ($\Delta E < 1$). No significant relationship was found in comparison of color changes between groups and equivalent shades. ($P < 0/05$) Analysis of color factor changes shows in all Items and groups shifted from color to red. In other cases, except for the XBW shade of the Solafil group, the composites are darker and yellower, respectively.

Conclusion: In the present study, no difference was observed between blend effect composites and conventional microhybrid composites. Color changes were clinically acceptable due to the accelerated aging method used ($\Delta E < 3/3$). However, the composites became yellower, redder and darker.

Keywords: color stability; Accelerated aging; blending effect Composites resin.