OSC9: Colour Stability and Matching Accuracy of Custom Dual Laminated Composite Resin Shade Guide

Mohd Zulkifli Kassim[1], Siti Nadia Rahimi[1], Muhamad Asyraf Berhanuddin[2], Siti Mariam Ab Ghani[1], Tong Wah Lim[1]

[1]Centre for Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA, Selangor, Malaysia, [2]Klinik Pergigian Padang Tengku, Ministry of Health, Malaysia.

Aims: Custom-dual-laminated shade guides are used to mimic closely the material and layering technique used in final restoration. This study aims to determine optimal time duration for custom-dual-laminated composite resin shade guides to reach colour stability after polymerization and to compare their colour matching accuracy with the conventional shade guides.

Materials and Methods: 18 incisor shaped dual-laminated resin composite specimens from two commercially available composite resin materials; Group 1 (Ceram. X® One Enamel

& Dentine) and Group 2 (Filtek™ Z350 XT) were prepared into shade A2, A3 and A3.5 according to manufacturers' instruction. Colour measurement done with spectrophotometer CIELab system immediately after polymerization (t0), 24 hours (t1), 7 days (t7), 14 days (t14) and 21 days (t21). The average values were obtained to calculate Δ between the specimens and Vitapan classical shade guide at each post-curing time. Data was analysed using repeated measure ANOVA (SPSS 24) and acceptability threshold ($\Delta \leq 3.3$) were used to determine matching accuracy.

Results: Δ were significant for all specimens until 24 hours for Group 1 and 7 days for Group 2. At the optimal time period, all specimen showed Δ values greater than acceptability threshold ($\Delta \leq 3.3$) except for Group 2 A2 shade.

Conclusions: Colour stability of custom shade guides were reached at 24 hours for Group 1 and 7 days for Group 2 after polymerization. Only Group 2 A2 shade was accurately matched relative to conventional shade guides emphasizing the importance of using custom dual laminated shade guide for multi-layering technique.

DOI: 10.4103/0972-4052.244598