

Content-type: text/html

Mail form to: IADR, 1619 Duke Street, Alexandria, VA 22314-3406, USA

(FAX SUBMISSIONS WILL BE REFUSED.)

Type perfect original of abstract here:

Deadline for submission: January 5, 2001

1476

(1) Print problems
 (2) Followup
 (3) INWR
 (4) DINR
 (5) Followup
 (6) INWR
 (7) Special Scheduling
 (8) Symposium/JCR
 (9) Use Only:

Adverse interaction of all-in-one adhesives with photoaccelerators and fillers in light-cured composites. F.R.TAY^{1*}, K.IKEMURA², D.H.PASHLEY³ (¹The University of Hong Kong, CHINA; ²Shofu, Inc., JAPAN; ³Medical College of Georgia, USA)

We previously reported that compromised bonding of all-in-one adhesives occurred upon delayed activation of some light-cured composites. This study further examined the effect of different types of photoaccelerators and fillers in experimental light-cured composites on the ultrastructure and bonding of two all-in-one adhesives to sound dentin. Three UDMA/TEGDMA based resins were formulated using CQ as photoinitiator and three different photoaccelerators: DMAEMA (D), a tertiary amine, TMBA (T), a barbituric acid, and DBTDL (B), a tin dilaurate salt. They were blended with two types of glass fillers, fluoride-releasing fluoroalumino silicate glass (F) and conventional aluminosilicate glass (C) to form six experimental composites. Flat dentin surfaces were bonded with either Reactmer Bond (Shofu) or Prompt L-Pop (ESPE) and light-cured separately. The experimental composites were either light-cured immediately, or left to contact with the cured adhesives for 20 min before light-activation. Composite-dentin beams were prepared for microtensile bond testing. Both composites and unfilled resins were bonded to the adhesives after delayed light-activation and examined with TEM. Kruskal-Wallis ANOVA and Dunn's tests indicated significantly lower bond strengths ($p<0.05$) when all composites were bonded after delayed light-activation. Failure occurred along the composite-adhesive interfaces. TEM revealed formation of a salt layer between the F glass particles and the adhesive. When bonded to unfilled resins, soapsud like blisters were found on the surface of the adhesive layer in D and B. It is concluded that uncured acidic resin monomers from air inhibition layers of all-in-one adhesives can form reaction products on prolonged contact with basic glass fillers and photoaccelerators, that prevent coupling of some composites to the adhesives (Supported by grant DE06427, NID CR)

896

Presenter Information:

(Type or print legibly in black or blue ink.)

5. Area of Review (check only one):

(1) Behavioral Sciences/Health Services Research
 (2) Behavioral Sciences/Epidemiological Methods

10. List five descriptors by number (see reverse side).

If existing descriptors do not fit your research, then write one new word under "Other": (1) 110

[Browse the technical program](#)

of the 79th General Session of the International Association for Dental Research (June 27-30, 2001)