

Author: [ADVANCED](#)

Volume Page

Keyword: [TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 26 (2007) , No. 3 p.445-450

[\[PDF \(146K\)\]](#) [\[References\]](#)**The Effect of Thermal Stress on Bonding Durability of Resin Composite Adaptation to the Cavity Wall**[Nipaporn WATTANAWONGPITAK](#)¹⁾²⁾, [Takako YOSHIKAWA](#)¹⁾, [Michael F BURROW](#)³⁾ and [Junji TAGAMI](#)¹⁾⁴⁾

1) Cariology and Operative Dentistry, Department of Restorative Sciences, Graduate School, Tokyo Medical and Dental University

2) Department of Restorative Dentistry, Faculty of Dentistry, Naresuan University

3) School of Dental Sciences, University of Melbourne

4) Center of Excellence (COE) Program for Frontier Research on Molecular Destruction and Reconstruction of Tooth and Bone, Tokyo Medical and Dental University

(Received October 31, 2006)

(Accepted February 2, 2007)

Abstract:

This study evaluated the effect of thermal stress on marginal sealing and cavity wall adaptation using two adhesive systems. Cylindrical cavities were prepared in superficial dentin of bovine incisors and bonded with Clearfil SE Bond or Single Bond adhesive. Cavities were bulk-filled with Photo Clearfil Bright or Filtek Flow resin composite and light-cured for 40 seconds. Specimens were thermocycled for 0, 500, or 5000 times. A dye penetration test was carried out to determine adaptation to the cavity wall. Dye penetration length was calculated as a percentage of the total cavity wall length. Clearfil SE Bond showed excellent marginal sealing and cavity wall adaptation regardless of composite type up to 500 cycles of thermal stress. As for the Single Bond groups, significantly greater marginal leakage occurred after 500 cycles. At 5000 cycles of thermal stress, both adhesive systems showed significantly decreased marginal integrity compared with the 0 cycle group.

Key words:[Thermal stress](#), [Bond durability](#), [Adaptation](#)

To cite this article:

Nipaporn WATTANAWONGPITAK, Takako YOSHIKAWA, Michael F BURROW and Junji TAGAMI. The Effect of Thermal Stress on Bonding Durability of Resin Composite Adaptation to the Cavity Wall . Dent. Mater. J. 2007; 26: 445-450 .

doi:10.4012/dmj.26.445

JOI JST.JSTAGE/dmj/26.445

Copyright (c) 2009 The Japanese Society for Dental Materials and Devices



[Japan Science and Technology Information Aggregator, Electronic](#)

