

Journal of Orthodontics

jorthod.maneyjournals.org

**doi: 10.1179/146531205225021501****Journal of Orthodontics June 2006 vol. 33 no. 2 116–124****SCIENTIFIC SECTION**

© 2006 British Orthodontic Society

An *in-vitro* investigation into the use of a single component self-etching primer adhesive system for orthodontic bonding: a pilot study

K. House and A. J. Ireland**M. Sheriff**

Author Affiliations

Address for correspondence: Dr A. J. Ireland, Department of Child Dental Health, Bristol Dental Hospital, Lower Maudlin Street, Bristol BS1 2LY, UK. E-mail: tony.ireland@bristol.ac.uk

Received 25 January 2005.

Accepted 1 February 2006.

Abstract

Objective: This pilot study assessed force to debond (N); time, and site of bond failure of a single component self-etching primer (SEP) and adhesive system, Ideal 1 (**GAC** International Inc., USA) and compared it with the conventional acid etch and rinse regimen using 37% *o*-phosphoric acid solution and either TransbondTM XT (3M Unitek) or Ideal 1 adhesive.

Design: *In vitro* laboratory study**Setting:** Bristol Dental Hospital, UK. Sept 2003–Sept 2004

Material and Methods: Nine groups of 20 premolars were bonded using metal orthodontic brackets using three protocols: (1) 37% *o*-phosphoric acid etch and TransbondTM XT adhesive; (2) 37% *o*-phosphoric acid and Ideal 1 adhesive; (3) Ideal 1 SEP and Ideal 1 adhesive. Force to debond and locus of bond failure were determined at three time intervals.

Results: Enamel pre-treatment prior to bonding, namely SEP versus conventional etching had no significant effect on the median force to debond with the Ideal 1 adhesive. Similarly, when the enamel was conventionally etched, the adhesive type, namely Ideal 1 or TransbondTM XT, had no significant effect on the measured force to debond. However, there appeared to be differences in the locus of bond failure: failure predominated at the enamel/adhesive interface for the TransbondTM XT conventional etch group and at adhesive/bracket interface for the Ideal 1 SEP and adhesive group and the Ideal 1 adhesive conventional etch group.

Conclusion: These results suggested that the complete Ideal 1 SEP and adhesive system might be successful *in vivo* leading therefore to a clinical trial. However, implications for clean up time are discussed and improvements to *in vitro* study designs are advised.

Key words:**Brackets bond strength orthodontics self-etching primers**

Articles citing this article

Shear bond strength of fluoride-releasing orthodontic bonding and composite materials

Eur J Orthod June 1, 2010 32:268–273

[»Abstract](#) [»Full Text](#) [»Full Text \(PDF\)](#)