

THE DENTAL ADVISOR
Dental Consultants, Inc.
3110 West Liberty
Ann Arbor, MI 48103
734.665.2020 x-112/FAX 734.665-1648
ron@dentaladvisor.com

Mechanical Properties of Self-adhesive Resin Cement

R. Yapp, J.M. Powers

Purpose: To evaluate the bond strength and flexural strength of a self-adhesive resin cement.

Experimental Design:

Material: Cements: _____
Substrates: Adult Human ground enamel and superficial dentin

Curing Mode: Self-cured for bond strength and both self- and light-cured for flexural strength and modulus.

Tests:

Shear Bond Strength (Ultradent shear) to human enamel and dentin: Human extracted third molars previously stored in sodium azide solution and then in saline, will be embedded in acrylic resin discs and ground through 600 grit to form a bonding substrate of ground enamel and ground superficial dentin surfaces. The self-adhesive resin cement will be applied to the substrate utilizing the Ultradent Shear Test mold and jig to produce a self-cure 2.38 mm diameter cylinder. The shear bond strength test will be performed on this cylinder, a universal testing machine (Model 5866, Instron) at a crosshead speed of 1 mm/min. Means and standard deviations of bond strength will be calculated and reported.

Flexural Strength and Modulus: Specimens will be standard 2X2X25 mm bars molded in Delrin molds. Specimens will be fabricated and cured as recommended. All specimens will be covered with mylar at the initiation of curing. Light-cured mode will subject the specimens to 1000-1500 mW/cm² light intensity for 40 seconds per side using the slow scan technique. All specimens will be stored in 37°C water for 24 hours. At the end of the storage period, all specimens will be sanded to remove all flash and slightly round the edges. The specimens will then be subjected to the three-point bend test using an Instron 5866 universal test machine with a cross-head rate of 0.5mm/min. Means and standard deviations will be reported.

Replications – 8

Fee: \$ 3520.00 plus cement (6 cartridges min. per cement)

Time Frame: 3 to 4 weeks after receipt of materials.

ResearchContract
Mechanical Properties

