

Bond Strength of G2-BOND Universal

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Introduction:

G2-BOND Universal is the latest 2-bottle addition to GC's adhesive portfolio to compete with self-etch and etch and rinse system. The primer has optimal hydrophilic properties to increase dentin penetration for sealing, strength and self-etching properties, while the HEMA-free hydrophobic layer reduces hydrolytic degradation for increased durability and interfaces with composite. DENTAL ADVISOR tested the initial bond strength and bond strength after accelerated aging of this new system compared to gold-standard self-etching **Product A** and Etch and Rinse **Product B**.

Experimental Design:

MATERIALS:

Bonding Agents: **GC G2-BOND Universal** (GC America), **Product A**, **Product B**

Composite: **G-aenial Universal Injectable** (GC America)

TEST PARAMETERS:

Substrates: Human Superficial Dentin, Human Ground Enamel

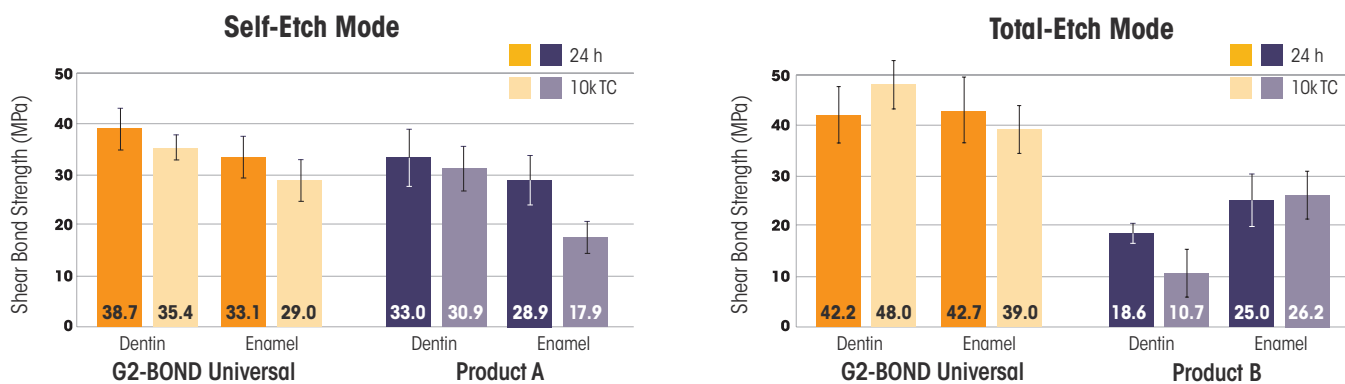
Etching Mode: Self-etch, Total-etch

Storage Conditions: 24 hours, 10000 Thermocycles (TC)

Methods:

Direct Shear Bond Strength [n=8] per bonding agent to dentin, enamel with self-etch and total-etch modes: Human adult molars, sterilized in a 1 % Chloramine T solution, and stored in deionized water were embedded in acrylic resin discs and ground through 600-grit SiC paper to form bonding substrates of superficial dentin and ground enamel. Specimen surfaces were treated and bonding agent placed according to manufacturer instructions. **G-aenial Universal Injectable** was then placed on top of the bonding agent utilizing the Ultradent Shear Test mold and jig to produce a 2.38 mm diameter shear test cylinder according to ISO 29022:2013. The cylinder was light cured for 20 seconds while in the mold. The specimens were then transferred to a 37°C deionized water bath for 24 hours storage until testing or thermocycling. Thermocycling was performed by transferring specimens between a 5° C and 55° C water bath with a 20s dwell time for 10,000 cycles.

Results:



No application issues were observed with **G2-BOND Universal** and achieving a consistent bonding film thickness was simple.

Conclusion:

G2-BOND Universal performed better than **Product A** and **Product B** tested in their respective etching modes to dentin and enamel in immediate 24h shear bond strength and after accelerated aging.

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G2-BOND Universal is a two-component light-cured universal adhesive used by dental professionals for the direct bonding of light-cured composites/resin to the tooth structure. G2-BOND is contraindicated for direct pulp capping. Avoid the use of G2-BOND Universal in patients with known allergies to methacrylate monomer, methacrylate polymer, or acetone. In case of contact with eyes, flush immediately with water and seek medical attention. In case of contact with oral tissue or skin, immediately remove with a sponge or cotton pellet. After the restorative treatment is finished, rinse thoroughly with water. Avoid inhalation or ingestion of material. 1-PRIMER is a highly flammable liquid and vapour. Do not use near an open flame. Keep away from sources of ignition. Do not store large quantities in one area. Keep away from direct sunlight. 1-PRIMER is volatile. Use in a well-ventilated place. Advise patients to breathe through the nose. Do not mix 1-PRIMER with 2-BOND. In rare cases, the product may cause sensitivity in some people. If such a reaction occurs, discontinue the use of the product, and refer to a physician.

G-ænial Universal Injectable is a tooth filling material for use only by a dental professional in the recommended indications. Avoid use of the G-ænial Universal Injectable in patients with known allergies to methacrylate monomer or methacrylate polymer. G-ænial Universal Injectable is contraindicated for direct pulp capping. In case of contact with oral tissue or skin, remove immediately with cotton or a sponge soaked in alcohol. Flush with water. In case of contact with eyes, flush immediately with water and seek medical attention. In rare cases the cited products may cause sensitivity in some people. If any such reactions are experienced, discontinue the use of the product and refer to a physician.

For more information visit www.gcaustralasia.com or contact your GC specialist.