

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 of this new system compared to gold-standard self-etching **Clearfil SE Bond 2**, and Etch and Rinse **Optibond FL**.

Experimental Design:

MATERIALS:

Bonding Agents: **GC G2-BOND Universal** (GC America), **Clearfil SE Bond 2** (Kuraray), **Optibond FL** (KaVo Kerr)
Composite: **G-aenial Universal Injectable** (GC America)

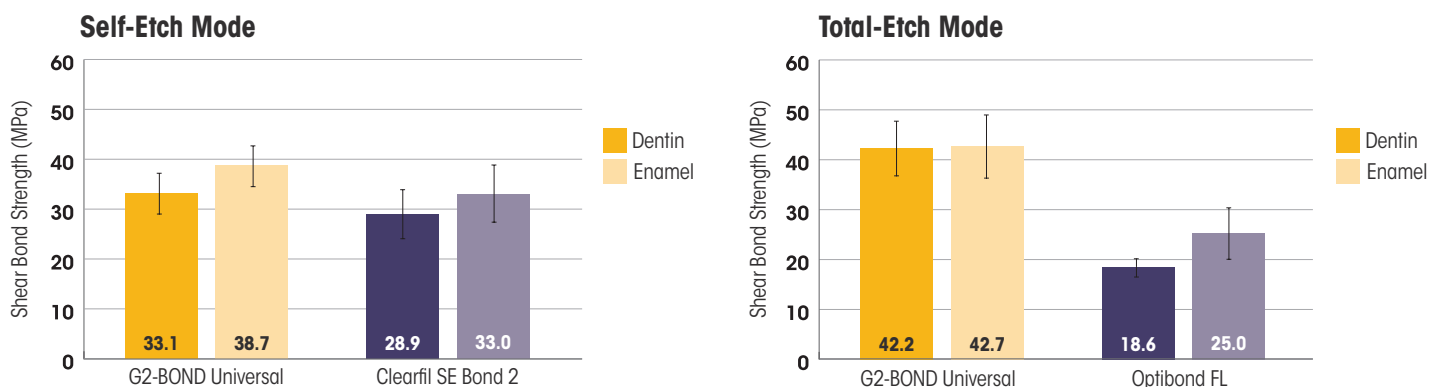
TEST PARAMETERS:

Substrates: Human Superficial Dentin, Human Ground Enamel
Etching Mode: Self-etch, Total-etch
Storage Conditions: 24 hours

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. Testing was performed using a universal testing machine at a crosshead speed of 1 mm/min and shear bond strength results given with means and standard deviations.

Results:



No application issues were observed with **G2-BOND Universal** and achieving a consistent bonding film thickness was simple. Additional ongoing thermocycling and long-term storage will test the extended performance of the adhesives.

Conclusion:

G2-BOND Universal performed better than **Clearfil SE Bond 2** and **Optibond FL** tested in their respective etching modes to dentin and enamel in immediate 24h shear bond strength.