Competitive Product Comparison

Filtek™ Bulk Fill Flowable Restorative (by 3M™ ESPE™)

SonicFill™ Sonic-Activated, Bulk Fill Composite (by Kerr)

Results:
- The depth of cure of SonicFill™ was significantly lower than 5mm (when measured by the ISO 4049:2009 test method and curing from the “occlusal” surface only). The Instructions for Use calls for curing from the occlusal, buccal and lingual aspects for each posterior restoration.
- The values determined by the ISO 4049:2009 method support a 4mm depth of cure for Filtek Bulk Fill Flowable Restorative.
- Filtek Bulk Fill flowable exhibits less shrinkage stress than SonicFill.
- Filtek Bulk Fill flowable has higher radiopacity than SonicFill.
- SonicFill must be dispensed using a handpiece specific for this product.

ISO 4049:2009 Depth of Cure: Depth of cure is determined by filling a metal mold (4 mm in diameter and at least twice as long as the claimed depth of cure) with material. The sample is cured from one end of the mold for the recommended cure time. Immediately after exposure, the composite cylinder is removed from the mold and a plastic spatula is used to remove uncured material. The length of the remaining material is measured with a micrometer. The manufacturer can state a depth of cure value that is no more than 0.5 mm more than half the length measured.

Shrinkage Stress: An aluminum block with 4 by 4 mm open ended slot filled (after sandblasting, silane treatment and dental adhesive application) with the material in 1 increment (simulating a 4mm deep MOD preparation). The displacement of the “cusps” is measured. Aluminum has been shown to have a modulus similar to human enamel.

Radiopacity: An X-ray is taken of 1.0 mm disk of cured composite and an aluminum step wedge. The reported radiopacity is determined by comparing the optical density of the composite image to the optical density graph of the aluminum steps. Radiopacity less than 1 is considered radiolucent. In this test, the radiopacity of dentin is equivalent to 1 mm of Al and enamel is equivalent to 2 mm of Al.

Internal 3M ESPE test data
### Filtek™ Bulk Fill Flowable Restorative by 3M ESPE

| Composition | Resin: BisGMA, BisEMA(6), UDMA and Procrylat
| Filler System: | • Zirconia/silica with a particle size range of 0.01 to 3.5 microns (average 0.6 microns)
| | • Ytterbium trifluoride particle size range of 0.1 to 5 microns.
| | • Filler loading is 64.5% by weight (42.5% by volume)
| **Filler system:** | SiO₂, Glass, oxide, chemicals

| Indications | • Base under Class I and II direct restorations
| | • Liner under direct restorative materials
| | • Pit and fissure sealant
| | • As a core build-up where at least half the coronal tooth structure is remaining to provide structural support for the crown*
| **Manufacturers Claims** | • 4 mm depth of cure
| | • Low shrinkage and low shrinkage stress
| | • Up to 50% stronger than the leading bulk fill flowable
| | • Nearly twice the wear resistance of leading bulk fill flowables
| | • Choice of deliveries: easy-to-use capsules or syringes
| | • Orange color is easy to identify—and ask for
| | • Flowable viscosity makes it easy to achieve good adaptation

| Shades | Cure Time | Elipar™ S10 and 3M™ ESPE™ LED lights (with output 1-2 W/cm²)
| All halogen lights LED lights (with output 550-1000 mW/cm²) |
| U | 20 sec. | 10 sec.
| A1, A2, A3 | 40 sec. | 20 sec.

| Delivery | All shades available in 2 g Syringes or 0.2 g Capsules | 0.3 g Unidose® (requires specific handpiece to dispense material)

Information obtained from the Kerr website and SonicFill Instructions for Use
*For a full list of indications, refer to the IFU