

## Filtek Supreme Universal Restorative Material (Project 02-35) (05/03)

Filtek Supreme is a new resin composite by 3M ESPE with unique nanofiller technology. Formulated with nanomer and nanocluster filler particles, the composite is purported to combine the strength of a hybrid and the polish of a microfil. Nanomers are discrete nonagglomerated particles of 20-75 nm in size. Nanoclusters are loosely bound agglomerates of nano-sized particles. The agglomerates act as a single unit, the company claims, enabling high filler loading and high strength. Most shades contain a combination of non-agglomerated 20-nm nanosilica filler and aggregated zirconia/silica nanocluster (primarily 5-20nm) filler. The cluster particle size range is 0.6 to 1.4 microns. The filler loading is 79% by weight. The combination of nanomer-sized particles and the nanocluster formulations reduces the interstitial spacing of the filler particles. This reportedly provides increased filler loading, better physical properties and improved polish retention when compared to composites containing only nanoclusters. The resin monomer system is the same as found in Filtek Z250 with BisGMA, BisEMA, UDMA and small amounts of TEGDMA.



The composite is available in 30 different shades in 4 opacities (dentin, body, enamel and translucent) and is purportedly suitable for anterior and posterior restorations, core build-ups, splinting, and indirect restorations, including inlays, onlays and veneers. A shade selection wheel is provided for more complex restorations and serves as a guide for placing anywhere from one to four layers of composite.

### **Manufacturer:**

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### **Suggested Retail Price:**

\$291.65 Filtek Supreme Professional Kit, (item no. 3911P) contains:  
-one hundred 0.20-g capsules, 10 each of shades A2B, A2D, A2E, B2B, B3E, C3B, B1E, WB, WE, A3B  
-one 4-g syringe each of shades GT, YT  
-one Shade Selector Wheel

### **Government Price:**

\$183.80 Filtek Supreme Professional Kit (item number and contents as listed above)

### **ADVANTAGES:**

- + Handles well; easy to place and manipulate from unit-dose capsules.
- + Excellent mechanical properties.
- + Body, enamel and translucent shades require only 20 seconds for adequate curing.
- + High degree of radiopacity; can easily be distinguished from enamel on radiographs.
- + Surface roughness after polishing is similar to popular microfills.
- + Instructions are supplemented with high-quality, graphics-containing technique cards.
- + Lot number and expiration date are printed on individual capsules.
- + Provided with innovative shade-selection wheel.

**DISADVANTAGES:**

- Most expensive resin composite evaluated by DIS to date.
- No shade guide.
- 30 shades available, but only 12 provided in Professional Kit.
- Kit is overly large with wasted space and is difficult to close.
- Kit does not come with dentin bonding agent.
- Material Safety Data Sheet (MSDS) is not provided with the product.

**SUMMARY AND CONCLUSIONS:**

Overall, Filtek Supreme did well in clinical-user testing. Its polishability, esthetics, and shade matching were rated highly by users. Even though it is nanofill, its mechanical properties and radiopacity were comparable to those of traditional hybrid resin composites and its polishability was similar to microfills. However, Filtek Supreme is the most expensive resin composite yet evaluated by DIS. The packaging is bulky and does not include a dentin bonding agent, shade guide or Material Safety Data Sheet. **Filtek Supreme** is rated **Acceptable** for use by the federal dental services.