Shrinkage is easy to measure and easy to understand. Polymerization shrinkage is the change in volume of your composite that occurs as you cure it. The composite shrinks as all the freely moving resin molecules go through the free-radical methacrylate polymerization reaction.

Stress is a little harder to visualize and a little harder to measure. Stress is the amount of force exerted on the tooth because of polymerization shrinkage. Stress is what can break the adhesive bond, crack enamel and allow leakage at the margins.

Why waste time with incremental layering?

Instead, you can place 3M™ Filtek™ One Bulk Fill Restorative in one layer up to 5 mm deep. You’re about to learn why.

The amount of stress is based on a number of factors

It’s not just the amount of shrinkage. Both the shrinkage of the material and the stiffness of the material come into play (Li 2007).

- A sealant, for example, can have very high shrinkage (over 5%) and place very low stress on the tooth (Kleverlaan 2005)
- A universal restorative might have 2% shrinkage, but because it is much stiffer, it will place much higher stress on the tooth (Kleverlaan 2005)

So what enables a dental composite to be placed in bulk?

There are recent advances in chemistry that allow us to control polymerization stress.

3M™ Filtek™ One Bulk Fill Restorative uses two resin components to reduce polymerization stress. To learn how it works, read on …
Here’s how it works.

The innovative component of the first resin is an addition-fragmentation monomer (AFM). The unique feature of this resin is that, during polymerization, the central group can fragment to relieve stress. The fragments can then re-polymerize in a lower stress state.

The other new resin component is aromatic urethane dimethacrylate (AUDMA). Because it’s a larger monomer than found in traditional dimethacrylates, it limits the number of shrinkage zones. That helps reduce the amount of shrinkage and stress that occurs during polymerization.

Ordering Information

3M™ Filtek™ One Bulk Fill Restorative

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<th>Shade</th>
<th>Item #</th>
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<tr>
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SYRINGE SHADE REFILLS include: 1 – 4g syringe; technique guide; Instructions for Use.
CAPSULE SHADE REFILLS include: 20 – 0.2g capsules; technique guide; Instructions for Use.

www.3M.com/FiltekOne