



Filtek™

Universal Restorative

3M™ Filtek™ Universal Restorative FAQs



Q. Why has 3M introduced a new universal composite?

A. The 3M™ Filtek™ brand is committed to bringing innovation to our dental products and restorative dentistry. We know the market is changing and our customers tell us they want simpler solutions to create beautiful restorations. We introduced 3M™ Filtek™ Universal Restorative to give customers the solutions that matter most to them, including a handling experience to dentists who prefer a creamy, soft handling composite with the same great strength, polish and polish retention they've come to expect from 3M composites.

Q. Is 3M™ Filtek™ Universal Restorative a bulk-fill composite?

A. No, 3M™ Filtek™ Universal Restorative is a universal composite that can only be placed incrementally (up to 2.0mm layers or 1.0mm for the Pink Opaquer).

Q. What is the difference between 3M™ Filtek™ Universal Restorative and 3M™ Filtek™ Supreme XTE Universal Restorative?

A. 3M™ Filtek™ Universal Restorative is a simpler system with creamier handling. The physical properties are similar to 3M™ Filtek™ Supreme XTE Universal Restorative due to the use of 3M nanocomposite technology. However, the new resin has lower polymerisation stress, and the filler system offers improved radiopacity. In addition, Filtek Universal Restorative offers an even whiter Extra White (XW) and a new Pink Opaquer (PO) for masking metal and dark dentine.



SIMILARITIES to 3M™ Filtek™ Supreme XTE Universal Restorative

- Patented nanotechnology and utilisation of the same nanofillers
- Excellent wear resistance and polish retention
- Excellent handling
- High strength

DIFFERENCES present in 3M™ Filtek™ Universal Restorative

- Proprietary low-stress monomers
- Universal opacity
- NaturalMatch Technology Single shade, universal opacity restorations
- Simplified shading for efficiency
- A whiter Extra White (XW)
- Higher fracture toughness
- Pink Opaquer
- Higher radiopacity
- Creamy, softer handling
- A longer capsule tip

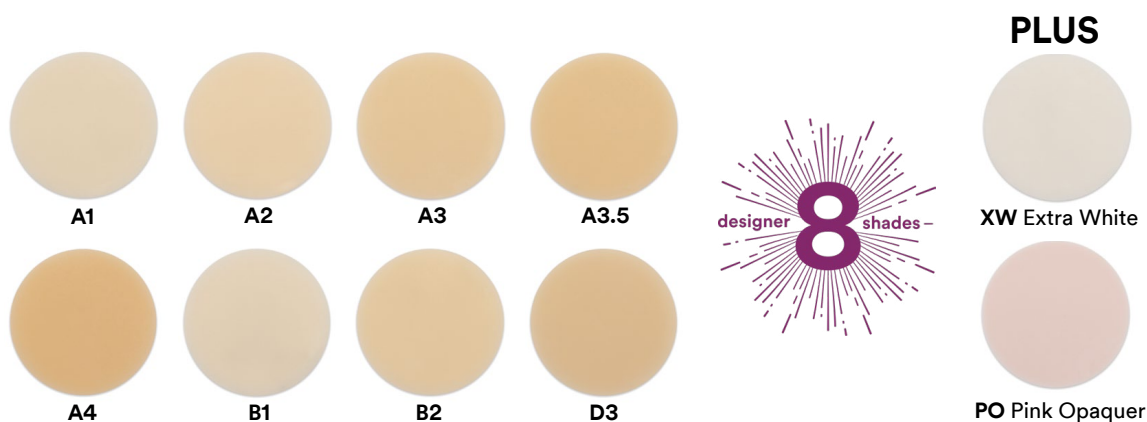


Q. What classification or type of material is 3M™ Filtek™ Universal Restorative?

A. 3M™ Filtek™ Universal Restorative is a TRUE nanocomposite. Filtek Universal Restorative utilises the same patented nanofiller technology employed by our other composites that allows us to have excellent wear resistance and polish retention.

Q. What is the opacity of 3M™ Filtek™ Universal Restorative? Does it match 3M™ Filtek™ Supreme XTE Universal Restorative?

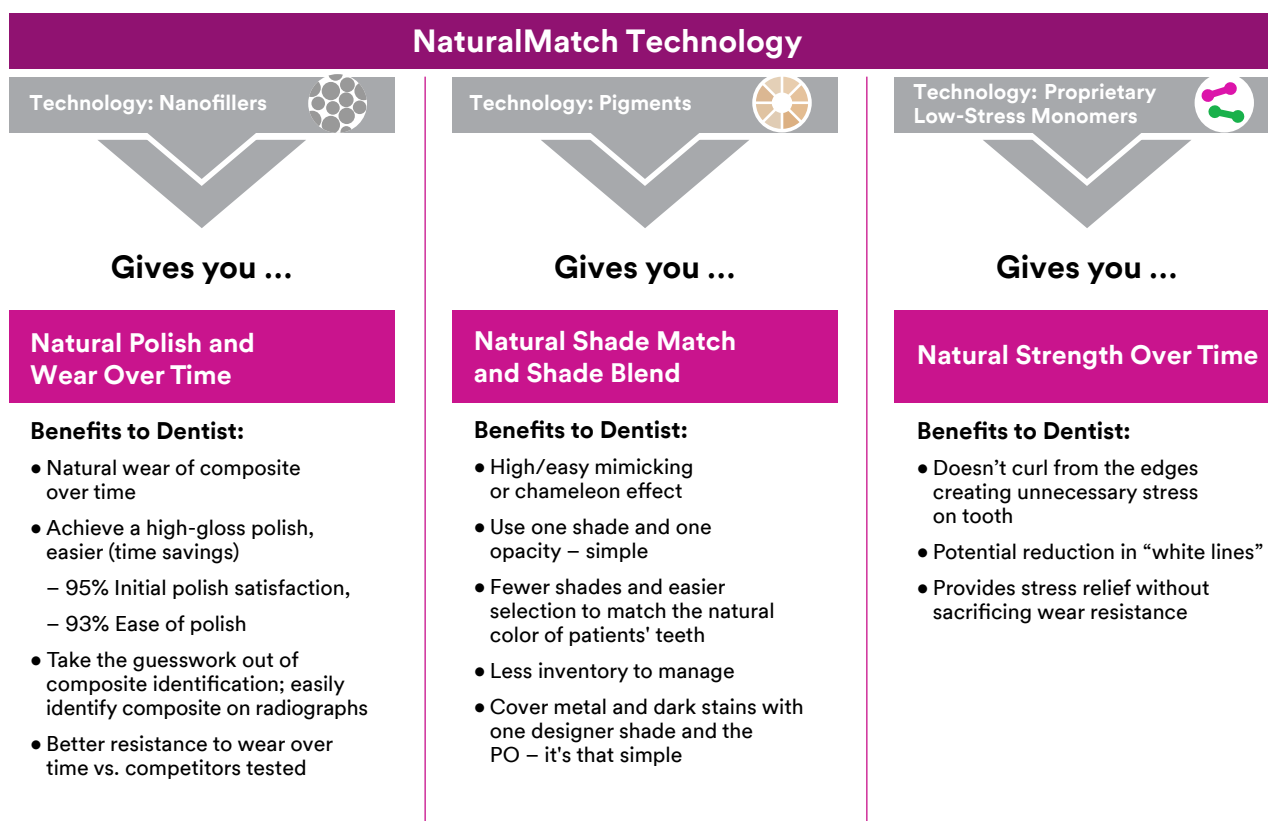
A. The opacity of 3M™ Filtek™ Universal Restorative is similar to the opacity of the body shades of 3M™ Filtek™ Supreme XTE Universal Restorative and can best be described as a "universal opacity." This opacity was carefully selected to enable the best aesthetics and performance for single-shade restorations, allowing 8 designer shades plus an Extra White (XW) to cover to the 19 VITA classical and bleach shades. We've also introduced a new Pink Opaquer (PO) for masking metal and dark stains, for improved aesthetics and opacity management during coverage.





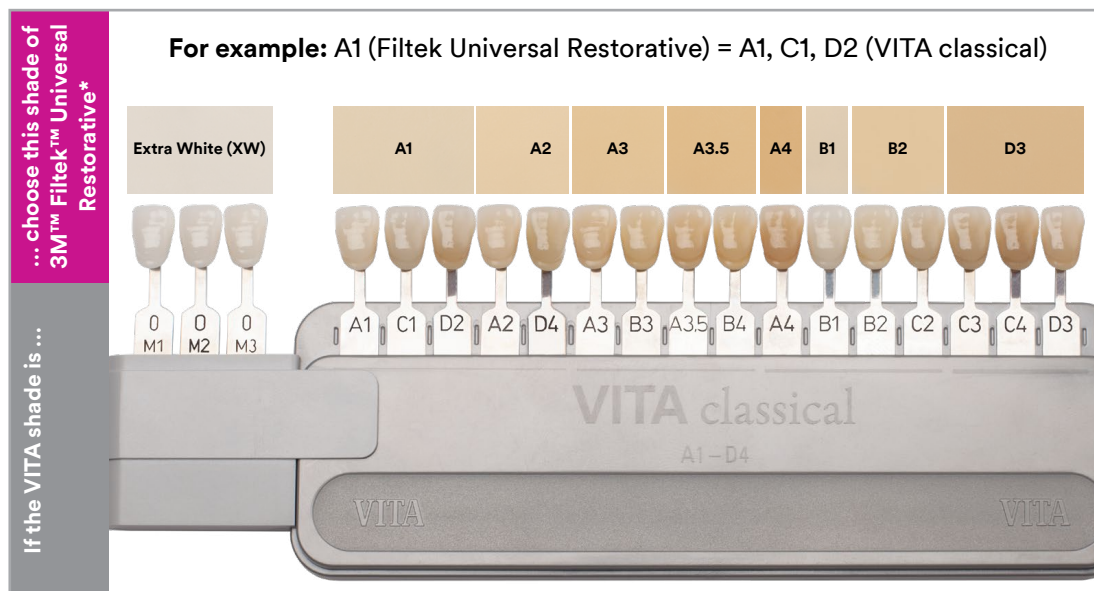
Q. What is NaturalMatch Technology?

A. NaturalMatch Technology is the term that describes the combination of certain technologies and features present within 3M™ Filtek™ Universal Restorative. NaturalMatch Technology consists of nanofillers, pigments and proprietary low-stress monomers that give Filtek Universal Restorative a combination of aesthetic and physical properties, that are similar to natural tooth structure.



Q. Do the shades of 3M™ Filtek™ Universal Restorative match VITA shades?

A. 3M™ Filtek™ Universal Restorative's 8 designer shades (A1, A2, A3, A3.5, A4, B1, B2, D3) plus an Extra White (XW) have demonstrated good coverage to all 19 VITA classical and bleach shades (OM1, OM2, OM3, A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4). This allows our material to cover more tooth shades, with less material and inventory, reducing complexity for high-end aesthetic restorations.



Q. How is the Extra White (XW) shade of 3M™ Filtek™ Universal Restorative whiter than competitive bleach shades?

A. The Extra White (XW) shade of 3M™ Filtek™ Universal Restorative includes two pigment components with NaturalMatch Technology, which allowed the XW to be whiter than some current composites on the market, as well as 3M™ Filtek™ Supreme XTE Universal Restorative. It also allows the XW shade to give cosmetic restorations a “whiter white” and addresses the growing tooth whitening market.



XW Extra White

Q. What is Pink Opaquer, and why is it useful?

A. The 3M™ Filtek™ Universal Restorative Pink Opaquer is a paste-based opaquer that can be used to mask stained tooth structure and metal. Filtek Universal Restorative's Pink Opaquer is highly pigmented, which creates a more opaque shade than the 8 designer shades (A1, A2, A3, A3.5, A4, B1, B2, D3). Because of its highly pigmented composition, it may only be placed up to 1 mm per layer following the instructions for use and curing protocols.

Filtek Universal Restorative's Pink Opaquer also provides excellent handling in terms of adaptation and ability to sculpt, which are important features when using an opaquer.

In creating the opaquer, pink was determined to be the appropriate color that enabled excellent coverage of stained tooth structure and metal. Using the pink coloration also had the effect that it allowed the Pink Opaquer to improve the overall quality of restorations when used in combination with the other Filtek Universal Restorative shades.



PO Pink Opaquer A1 shade



Before



After

Photos courtesy of Dr. Paulo Monteiro

Q. How do I use Pink Opaquer?

A. When you have a clinical situation where staining of the underlying dentition has occurred due to a variety of causes including the replacement of amalgam restorations, or you want to cover metal (i.e., implant screws), Pink Opaquer is an ideal material due to its highly pigmented nature.

It is important to only use a **thin layer of this material** (< 1.0 mm), as it can only be placed up to 1mm increments due to its pigmented composition. This also means that the light-curing time needs to be increased compared to the other shades. See below for more information.

Shade	Increment depth	Cure Time	
		All halogen lights (with output 550–1,000 mW/cm ²)	LED lights (with output 1,000–2,000 mW/cm ²)
Pink Opaquer	1.0 mm	40 sec.	20 sec.

Light cure the material for the appropriate amount of time for the light-curing device being used. Assess the situation for adequate masking coverage. We recommend placing 1.0 mm to 1.5 mm of 3M™ Filtek™ Universal Restorative over the Pink Opaquer for optimal aesthetics.

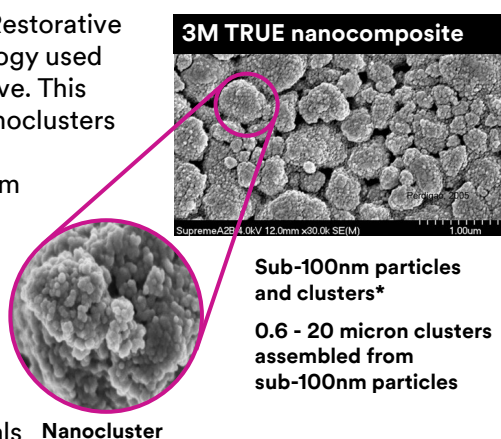
When using Pink Opaquer in anterior cases, it is important to not place a thick layer. By placing a thick layer of Pink Opaquer (1 mm+), you could change the final opacity of the desired restoration.



Q. What types of fillers are used in 3M™ Filtek™ Universal Restorative?

A. The filler system used in 3M™ Filtek™ Universal Restorative is the same patented, exclusive nanofiller technology used in 3M™ Filtek™ Supreme XTE Universal Restorative. This filler system is a combination of silane-treated nanoclusters and individually silane-treated nanosilica and nanozirconia. The result of utilising this filler system allows Filtek Universal Restorative to exhibit excellent wear resistance and polish retention, along with excellent handling in terms of both adaptation and ability to sculpt the material.

However, because the resins in Filtek Universal Restorative are different than Filtek Supreme XTE Universal Restorative the handling of both materials will be different. Filtek Universal Restorative can be described as creamy in consistency.



Sub-100nm particles
and clusters*

0.6 - 20 micron clusters
assembled from
sub-100nm particles

Nanocluster

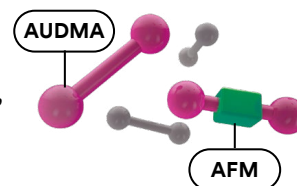


Q. What are the proprietary low-stress monomers?

A. The two proprietary low-stress monomers help to lower polymerisation stress.

One monomer, a high-molecular-weight aromatic urethane dimethacrylate (AUDMA), decreases the number of reactive groups in the resin. This helps to moderate the volumetric shrinkage as well as the stiffness of the developing and final polymer matrix—both of which contribute to the development of polymerisation stress.

The second unique methacrylate represents a class of compounds called addition-fragmentation monomers (AFM). During polymerisation, AFM reacts into the developing polymer as with any methacrylate, forming cross-links between adjacent polymer chains. AFM contains a third reactive site that may cleave through a fragmentation process during polymerisation. This process provides a mechanism for the relaxation of the developing network and subsequent stress relief. The fragments, however, still retain the capability to react with each other or with other reactive sites of the developing polymer. In this manner, stress relief is possible while maintaining the physical properties of the polymer.



Q. Why is low polymerisation stress and our low-stress monomers (AFM & AUDMA) important in an incrementally placed composite?

A. The layering technique has been used to overcome depth-of-cure limitations and to reduce polymerisation stress. Layering can reduce—but not avoid—the polymerisation stress entirely. Consequently, lowering polymerisation stress may help to minimise the effects of stress on the tooth and adhesive layer. By applying the technology of our two proprietary low-stress monomers (AFM & AUDMA), we have been able to significantly reduce the polymerisation shrinkage stress compared to traditional universal composites.

Q. What is different between the monomers in 3M™ Filtek™ Universal Restorative and 3M™ Filtek™ One Bulk Fill Restorative?

A. Both composites use 3M's proprietary low-stress monomer technology. However, 3M™ Filtek™ Universal Restorative is designed and shaded as a universal composite, which only allows it to be placed and cured in up to 2mm increments. 3M™ Filtek™ One Bulk Fill Restorative is a lower opacity, which allows for bulk filling and curing in up to 5mm increments. Since Filtek Universal Restorative has a universal opacity, it makes it a great choice for both anterior and posterior restorations.

Q. How did you improve the radiopacity compared to other 3M composites?

A. 3M™ Filtek™ Universal Restorative is more radiopaque than some of our other dental composite materials, including 3M™ Filtek™ Supreme XTE Universal Restorative. The high level of radiopacity is achieved by the incorporation of nano ytterbium trifluoride particles.

Excellent radiopacity confirmed by DENTAL ADVISOR

Further testing by DENTAL ADVISOR Biomaterials Research Center* (Ann Arbor, Michigan) confirmed 3M internal radiopacity rankings.

Each composite was measured separately using digital X-rays taken alongside an aluminium step wedge and evaluated in Adobe Photoshop CC using the histogram function to generate a calibration curve of gray level per millimetre thickness of aluminium.

Using this methodology, Filtek Universal Restorative measured 2.6 (0.1) mm alum/mm composite. DENTAL ADVISOR concluded that "Filtek Universal Restorative has an ideal radiopacity of greater than 250% aluminium and is among the highest of comparable composites on the market."

BOTTOM LINE: Radiopacity is important because it helps you distinguish natural tooth structure from dental composite on radiographs.

The radiopacity of Filtek Universal Restorative was described as "ideal" and is among the highest of comparable composites.

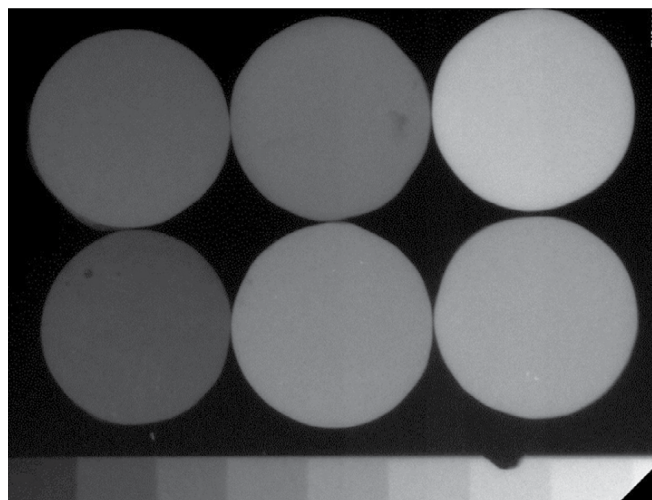


Fig. 1: Radiographs of 1 mm-thick composite specimens taken side by side for a visual comparison of the differences.

On top (left to right): Estelite Sigma Quick®, GRADIA® DIRECT X, TPH Spectra® ST HV

On bottom (left to right): ACTIVA™ BioACTIVE-RESTORATIVE™, Harmonize™, Filtek Universal Restorative



Q. Is 3M™ Filtek™ Universal Restorative a BPA-free dental material?

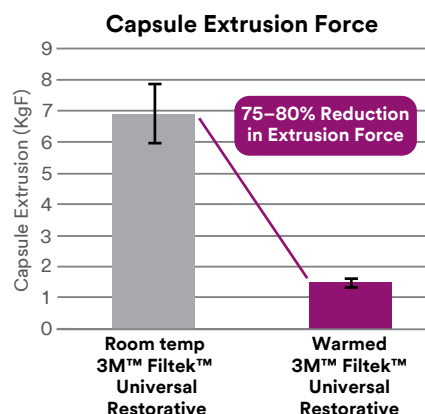
A. 3M™ Filtek™ Universal Restorative is a BPA-derivative-free, and BPA-free formulation like 3M™ Filtek™ One Bulk Fill Restorative. The BisGMA monomer that is used in our other composites has been replaced with a dimethacrylate that does not use Bisphenol A in its synthesis. This was done to maximise the stress relief during polymerisation.

Q. Can you warm, or heat up, 3M™ Filtek™ Universal Restorative?

A. While 3M™ Filtek™ Universal Restorative is designed to be used at room temperatures, the product can be warmed in capsules only, up to 70°C/158°F for up to 1 hour, in conventional capsule warming units. The product has the same physical performance warmed (diametral tensile strength, flexural strength, DOC, color) as it does at room temperature.

Why warm your composite?

- Decreases extrusion force by 75 – 80%
- Different handling properties
- More fluid viscosity
- Same physical performance as unwarmed



Q. Is warming required for 3M™ Filtek™ Universal Restorative?

A. No, warming 3M™ Filtek™ Universal Restorative is optional for those who prefer a more fluid-like consistency and reduced extrusion force when using Filtek™ Universal Restorative in capsules.

Q. If I am using the Bioclear® Method with 3M™ Filtek™ Supreme XTE Universal Restorative, can I do the same with 3M™ Filtek™ Universal Restorative?


A. Yes.

Q. Which curing lights are compatible with 3M™ Filtek™ Universal Restorative?

A. 3M™ Filtek™ Universal Restorative is compatible with the following curing lights:

- All halogen lights (with output 550–1,000 mW/cm²)
- LED lights (with output 1,000–2,000 mW/cm²)

See the curing time recommendations below or within the Instructions for Use on how long to cure Filtek Universal Restorative shades.



Shades	Increment depth	Cure Time	
		All halogen lights (with output 550–1,000 mW/cm ²)	LED lights (with output 1,000–2,000 mW/cm ²)
Body	2.0 mm	20 sec.	10 sec.
Pink Opaquer	1.0 mm	40 sec.	20 sec.

3M.com.au/FiltekUniversal



3M Oral Care

3M Australia Pty Limited
Building A, 1 Rivett Rd
North Ryde, NSW 2113
Ph: 1300 363 454
www.3M.com.au

3M New Zealand Limited
94 Apollo Drive
Rosedale, Auckland 0632
Ph: 0800 80 81 82
www.3M.co.nz

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