

**3M ESPE**

# RelyX™ Veneer Cement System

Technical Product Profile



---

# Table of Contents

System Features .....	5
System Description .....	5
Composition .....	7
Property Overview .....	8
Shade Matching .....	8
Color Stability .....	9
Curing Efficiency .....	11
Physical Property Testing .....	12
Technique Guides .....	13
Field Evaluation Results .....	14
Questions and Answers .....	18
Instructions for Use .....	19



---

## System Features

### **3M™ ESPE™ RelyX™ Veneer Cement** **3M™ ESPE™ RelyX™ Try-In Paste**

- Light-cure only system for veneer cementation
- High efficiency light curing
- Excellent color stability
- Excellent color matching between the try-in pastes and the cured cement
- Simple shading system
  - Translucent
  - B0.5/White
  - White Opaque
  - A1/Light Yellow
  - A3 Opaque/Yellow Opaque
  - A5/Dark
- Excellent handling properties
  - Easy dispensing
  - Easy seating
  - Easy clean-up
- Water soluble try-in pastes

---

## System Description

3M™ ESPE™ RelyX™ Veneer Cement System consists of the 3M™ ESPE™ RelyX™ Veneer Cement and the 3M™ ESPE™ RelyX™ Try-In Pastes. The system is indicated for the permanent cementation of ceramic or composite veneers. The system is intended to be used in combination with 3M™ ESPE™ RelyX™ Ceramic Primer and 3M™ ESPE™ Single Bond Dental Adhesive System or 3M™ ESPE™ Scotchbond™ Multi-Purpose Dental Adhesive System.

RelyX Veneer cement is a permanent, light-cure only resin luting material. It must be polymerized by exposure to visible light in the 400-500 nm wavelength range. Most ceramic and composite veneers are thin enough and translucent enough to allow for adequate light penetration through the veneer to completely cure the cement. RelyX Veneer cement is very efficient in its light-curing ability. This allows for a simplified bonding technique and also provides for excellent color stability of the cured cement. This feature is vitally important for highly esthetic veneer restorations.

3M™ ESPE™ RelyX™ Veneer Cement is available in 6 shades. The esthetic properties, shading and opacity, were determined through extensive dentist and laboratory input. The shades are described in both a Vita™ reference and a color reference based on clinician preference for desired shade description. The Vita references are close approximations to standard references. They may vary slightly in opacity due to the unique shading needs for modifying veneers. The available shades are listed below.

- Translucent
- BO.5/White
- White Opaque
- A1/Light Yellow
- A3 Opaque/Yellow Opaque
- A5/Dark

The Translucent shade will be used most often especially when the proper communication has been established between the clinician and the lab. In these cases, the veneer provides for the desired esthetics where color shifting is not necessary. If masking or shade adjustment is required, the remaining 5 shades are available. The white shades are used when adjustments are required to lighten or brighten the final esthetic result. The yellow and dark shades are used when adjustments are required to darken, increase the chroma or change the hue of the final esthetic result. All shades have a 30-second cure time with a standard halogen light except for the A5/Dark shade which requires a 40-second cure. RelyX Veneer cement is packaged in a tapered 3.0 gram syringe that allows for direct placement of the cement onto the veneer.

RelyX Veneer cement offers high physical strength, radiopacity, high wear resistance, high adhesive strengths, low film thickness and complies with the ISO 4049:2000 standard for resin based luting cements.

RelyX Veneer cement provides improved handling properties. RelyX Veneer cement was formulated through clinician input to determine the appropriate viscosity properties that would provide for an easy to dispense, easy to seat (without drift), easy to clean-up and an overall easy to use cement.

3M™ ESPE™ RelyX™ Try-In Pastes are used to guide the dentist in the selection of the shade required for the final cementation with RelyX Veneer cement. The shades of RelyX Try-In paste are specifically formulated to match the final cured shade of RelyX Veneer cement. This is a critical feature to ensure that the expected final desired esthetics are obtained.

Historically, many systems have not provided for adequate shade matching between the try-in pastes and their corresponding cured cement shades which may result in inadequate final results.

RelyX Try-In paste is water soluble for easy clean up and removal from the tooth and veneer surface without residue. The primary component of RelyX Try-In paste is polyethylene glycol resin (PEG). Polyethylene glycol offers complete water solubility and the ability to formulate the handling and shading properties needed in the try-in paste.

RelyX Try-In paste is available in the same 6 shades as the RelyX Veneer cement. RelyX Try-In paste is packaged in a tapered 2.0 gram syringe that allows for easy and direct placement of the paste onto the veneer.

---

# Composition

## **3M™ ESPE™ RelyX™ Veneer Cement**

RelyX Veneer cement is a light-cure, methacrylate resin-based luting material. RelyX Veneer cement is a single component, light-cure material packaged in a single syringe.

The resin is composed of bisphenol-A-diglycidylether dimethacrylate (BisGMA) and triethylene glycol dimethacrylate (TEGDMA) polymer. Zirconia/silica and fumed silica fillers are used to impart radiopacity, wear resistance and physical strength. The filler loading is approximately 66% by weight. The average particle size for the filler is approximately 0.6  $\mu\text{m}$ .

RelyX Veneer cement contains a dimethacrylate polymer (patent pending) that modifies the rheology of the material and provides a unique handling characteristic allowing the cement to flow easily under pressure, but hold its shape and stay in place until light-cured.

RelyX Veneer cement also contains pigments and a patented, high efficiency photoinitiator system. The photoinitiator will allow for light-curing when exposed to visible blue light in the 400-500 nanometer range with a minimum light output of 400mW/cm<sup>2</sup>.

## **3M™ ESPE™ RelyX™ Try-In Paste**

RelyX Try-In paste is a water-soluble material used to guide the dentist in the selection of the shade required for the final cementation with RelyX Veneer cement. RelyX Try-In paste is not polymerizable and cannot be used to cement the final restoration.

RelyX Try-In paste contains polyethylene glycol (PEG), a water-soluble resin which allows for easy water clean-up from the tooth and veneer. Zirconia/silica filler is used at an approximate 10% loading by weight to modify the handling and shading properties. Pigments are also added to allow for proper shading.

## **3M™ ESPE™ Single Bond Dental Adhesive System**

Single Bond dental adhesive system consists of Single Bond adhesive and 3M™ ESPE™ Scotchbond™ Etchant. Scotchbond etchant is a 35% by weight phosphoric acid gel with a pH of about 0.6. Its purpose is to etch dentin and enamel and to clean the surface of the veneer prior to applying the ceramic primer.

Single Bond dental adhesive is a one-bottle adhesive containing ethanol, 2-hydroxyethyl methacrylate (HEMA), BisGMA, other dimethacrylate resins, methacrylate-modified polycarboxylic acid copolymer, a small amount of water and a patented photoinitiator system.

## **3M™ ESPE™ RelyX™ Ceramic Primer**

RelyX Ceramic Primer is a patented and stable solution of a prehydrolyzed silane-coupling agent, alcohol and water. RelyX Ceramic Primer is specifically designed to enhance the chemical bond to porcelain and ceramics. The primer should be applied to the bonding surfaces of the indirect veneer restorations to be cemented with RelyX Veneer cement.

# Property Overview

## Shade Matching

It is vitally important that the shades of the try-in paste match the final cured cement shades to ensure that the desired esthetic results are obtained. To determine how well the try-in pastes match the cured cement, samples for each were prepared and analyzed for color. The color analysis was performed on a Hunter UltraScan XE color analyzer. The results for the two materials can then be compared and an overall color difference ( $\Delta E^*$ ) determined between the two materials. A color difference or  $\Delta E^*$  of 3 units or less is not considered significant. Therefore samples with a  $\Delta E^*$  of 3 units or less are considered to have a good color match. Samples that have a  $\Delta E^*$  of greater than 3 units will have a noticeable difference.

Discs, one mm thick, of the cement and try-in paste were prepared and the cements light-cured per the manufacturer's recommendations. Color analysis was done immediately with no aging or water storage. The color differences between the try-in paste and cured cement are shown in Figures 1-4 for various veneer bonding systems.

Figure 1.  
3M™ ESPE™ RelyX™  
Veneer Cement System

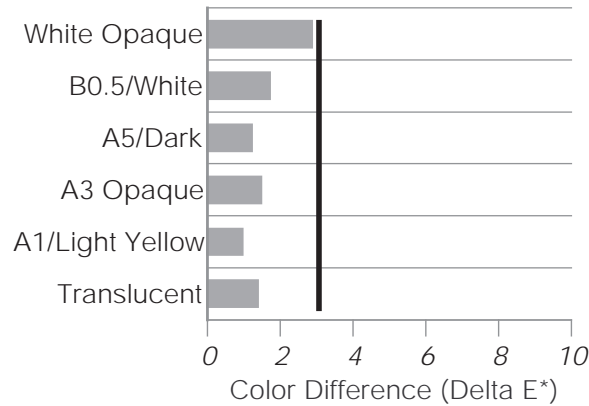


Figure 2.  
Variolink® II System

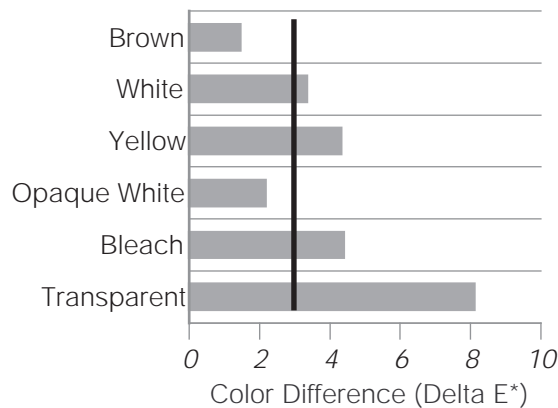




Figure 3.  
Calibra™ System

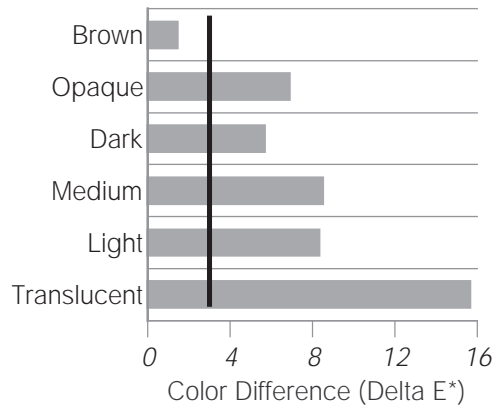
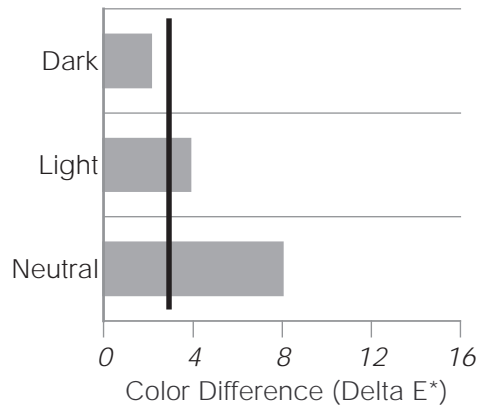


Figure 4.  
Nexus™ System



Color analysis results show excellent color matching capabilities between the 3M™ ESPE™ RelyX™ Veneer Cement and the 3M™ ESPE™ RelyX™ Try-In pastes.

### Color Stability

Color stability of the cured cement is necessary to maintain the esthetic results of the veneer restoration. If the cured cement changes color over time after the veneer is seated, it can significantly impact the outward shade of the veneer resulting in an unacceptable restoration. The only course of action is to cut the veneer off of the tooth and start over with the restoration. This is a costly procedure. The light-cure only chemistry of the RelyX Veneer cement will provide for a color stable restoration.

The translucent, clear, neutral or transparent shades of various cement systems were tested for color stability. Studies were done both in the 3M ESPE laboratory in St Paul, MN and at the Houston Biomaterials Research Center, University of Texas-Houston Dental Branch by Dr. R.M. Fay and Dr. J.M. Powers. This study was sponsored by 3M ESPE.

The 3M ESPE studies were conducted under the guidelines of the ISO 4049:2000 standard. Discs, one mm thick, of the cement were prepared, cured and analyzed using the Hunter Color Analyzer and recorded as the reference color. The discs were stored in both dry conditions and in water at 37°C. The samples were then tested at various time intervals to determine the level of color change for each sample when compared to the initial reference value. As with the color matching data, the overall color difference between the aged sample and the reference is measured as  $\Delta E^*$ . Samples with a  $\Delta E^*$  greater than 3 units will have a noticeable color change. The larger the  $\Delta E^*$  between samples, the greater the color difference will be. The color change over time for each sample is shown in Figures 5-7.

Figure 5.  
3M™ ESPE™ RelyX™  
Veneer Cement and  
Variolink® II

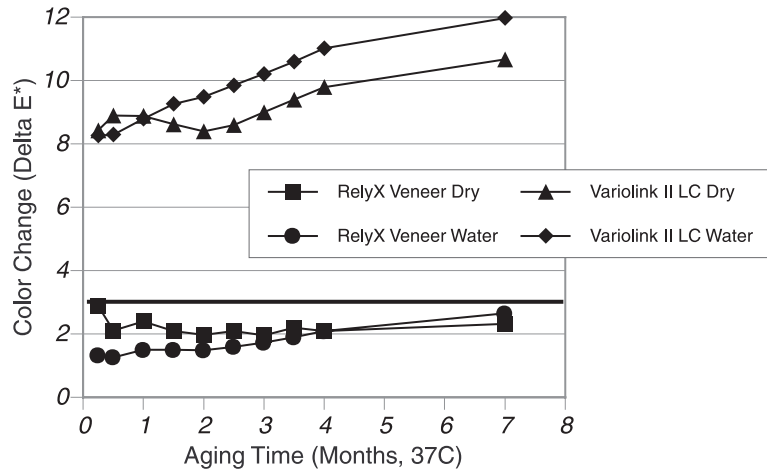


Figure 6.  
3M™ ESPE™ RelyX™  
Veneer Cement and  
Calibra™

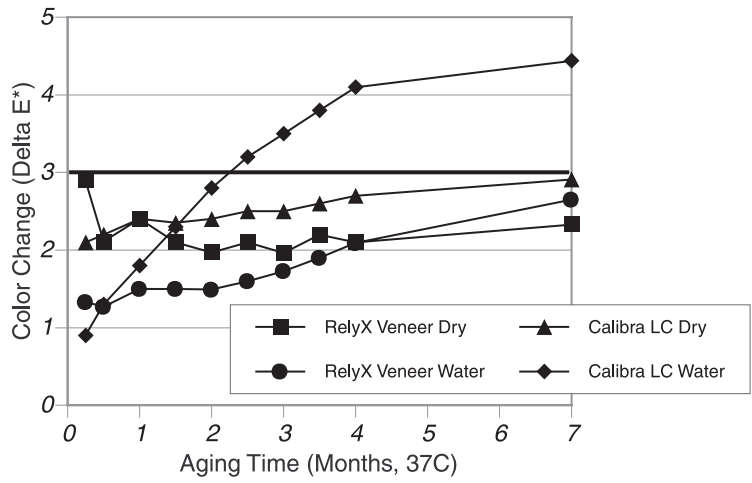
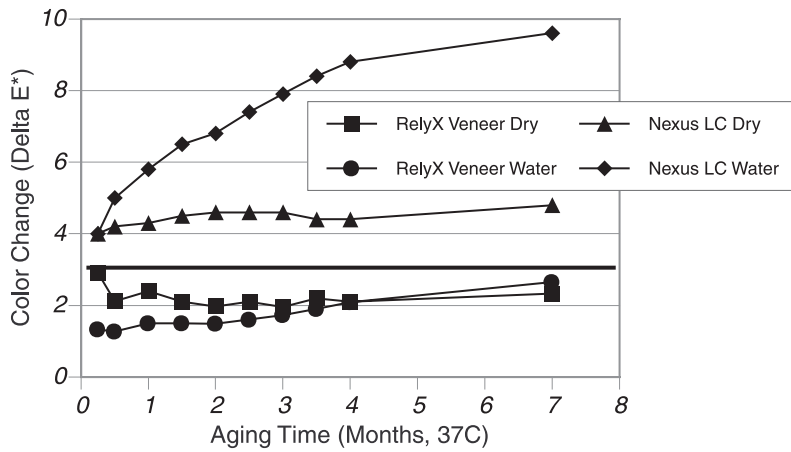


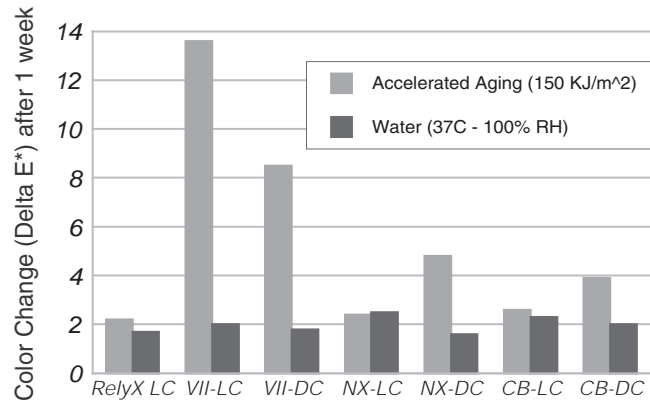
Figure 7.  
3M™ ESPE™ RelyX™  
Veneer Cement and  
Nexus™



The study at the University of Texas at Houston<sup>1</sup> varied slightly in methodology from the 3M ESPE study. Discs were prepared, cured and analyzed for reference color in a similar manner. The discs were then split into two groups. The first group was stored in water at 37°C for 1 week. The second group was subjected to accelerated aging conditions by exposing the samples to a light source (150KJ/m<sup>2</sup>) for 1 week. The samples were then retested for color and the  $\Delta E^*$  color difference was recorded for each sample and compared to the reference value. The products tested are abbreviated in the graphs as VII (Variolink® II), CB (Calibra™), and NX (Nexus™). The cements were cured by light exposure (LC) or by self cure (DC). The color change for each sample is shown in Figure 8.

<sup>1</sup> Journal of Dental Research, Vol. 80, January 2001, Abstract #255

Figure 8.  
Color Change  
Accelerated Aging



The results of both color stability studies show that the 3M™ ESPE™ RelyX™ Veneer Cement has excellent color stability over time and under accelerated aging conditions.

### Curing Efficiency

Curing efficiency is important for a veneer cement because curing the cement requires light-curing through the veneer. The light intensity that reaches the cement can be greatly compromised depending on the thickness and shade of the veneer and also depending on the actual light output of the curing light. There are a wide variety of curing lights currently being used by clinicians with varying outputs. To obtain the desired physical properties upon curing, it is recommended that the minimum light output for a curing light is 400 mW/cm<sup>2</sup> in the wavelength range of 400-500nm.

The light-cure efficiency for various cement systems was measured using the translucent, clear, neutral or transparent shades. Two curing lights were used for the study, a lower power (451 mW/cm<sup>2</sup>) 3M™ Visilux™ II Curing Light and a high power (>2,000 mW/cm<sup>2</sup>) DMD™ Apollo™ 95E. The cements were cured at a 1mm thickness directly under the curing light and after filtering through simulated porcelain veneers (1.00 mm thick, Vintage Porcelain Body A2). Cure efficiency was determined by varying the exposure time and then sampling the Barcol hardness of a cement slab. The estimated time to achieve full cure was determined to be the light exposure time necessary to achieve Barcol hardness readings on top and bottom that differ by 1 unit or less. Table 1 shows the required exposure times to achieve full cure of the cement with the two light sources and with either a direct or filtered exposure.

Table 1.  
Required Exposure  
Times to Fully Cure

	RelyX Veneer	Variolink® II	Calibra™	Nexus™
Visilux II, no Filter	20	20	40	>40
Visilux II, A2 Filter	20	20	60	>50
Apollo 95E, no Filter	3	3	>9	>9
Apollo 95E, A2 Filter	9	9	ND <sup>1</sup>	ND <sup>1</sup>

<sup>1</sup>ND - Not determined, did not cure within 9 second test interval

Achieving complete cure of 3M™ ESPE™ RelyX™ Veneer Cement and Variolink® II cement with the lower output from the 3M™ ESPE™ Visilux™ II Curing Light and an A2 filter required only 20 seconds exposure while the Calibra™ cement required 60 sec exposure and the Nexus™ cement required >50 seconds. Using the Apollo 95E and direct exposure, the RelyX Veneer and Variolink II cements cured in 3 seconds directly and 9 seconds when filtered, while the Calibra and Nexus cements did not cure under either condition after the 9 second exposure. The RelyX Veneer cement has a very efficient cure with a variety of light sources.

## Physical Property Testing

RelyX Veneer cement was tested per the ISO 4049:2000 guidelines for resin based luting materials. The results for the testing are shown in Table 2.

Table 2.  
ISO 4049:2000  
Testing Results

	ISO Spec Limits	RelyX Veneer Cement
Film Thickness	50 µm maximum	5-10 µm
Flexural Strength	50 Mpa minimum	123 Mpa
Color Stability	Pass/Fail	Pass
Solubility	7.5 µg/mm <sup>3</sup> maximum	0.3 µg/mm <sup>3</sup>
Water Sorption	40 µg/mm <sup>3</sup> maximum	29 µg/mm <sup>3</sup>
Radiopacity	Pass/Fail	Pass
Sensitivity to Ambient Light	Pass/Fail	Pass
Depth of Cure	1.0 - 1.5 mm minimum	3.0 mm

RelyX Veneer cement meets the requirements per the ISO 4049:2000 standard.

Table 3 shows results for other physical properties such as compressive and diametral tensile strength, shear bond strength to dentin and enamel, wear resistance and film thickness. The bond strength testing was performed with the adhesive systems provided with the cement system.

Table 3.  
Physical Properties  
of 3M™ ESPE™ RelyX™  
Veneer Cement

	RelyX Veneer	Variolink II	Calibra	Nexus
<b>Bond Strength (24 Hour – MPa)</b>				
Ceramco Finesse™ All-Ceramic Porcelain to enamel				
	28.6 (10.3)	26.8 (4.7)	14.5 (4.3)	11.4 (4.9)
Ceramco Finesse™ All-Ceramic Porcelain to dentin				
	26.6 (10.4)	21.7 (11.8)	7.9 (5.8)	11.1 (1.7)
<b>Compressive Strength</b> (24 Hour MPa)	345.7 (20.0)	352.4 (13.7)	315.9 (22.1)	279.2 (26.8)
<b>Diametral Tensile Strength</b> (24 Hour MPa)	77.6 (4.0)	54.2 (2.9)	40.4 (4.6)	56.3 (5.1)
<b>Wear Rate</b> (µm/10,000 cycles)	1.0 (0.5)	0.9 (0.2)	1.30 (1.39)	0.97 (0.05)
<b>Film Thickness (µm)</b>	8.7 (1.6)	29.6 (3.8)	12.2 (4.9)	19.7 (3.1)

# Technique Guides

## BONDING PORCELAIN VENEERS

### 3M™ ESPE™ RelyX™ Veneer Cement

### 3M™ ESPE™ RelyX™ Try-In Paste

- Verify that the dental lab has etched the veneers.
- Remove provisional restoration if present. Clean tooth with plain flour of pumice slurry, rinse and lightly air dry.

#### Preparation for Bonding:

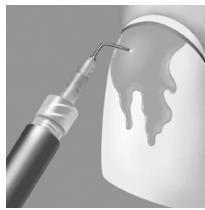
- Clean the teeth using a plain flour of pumice slurry, rinse and lightly air dry.
- Place matrix strips between teeth to prevent unwanted bonding to adjacent teeth.
- Isolate the bonding area to prevent contamination.

#### Try-In/Shade Selection:

- Try-in veneer with water or Translucent shade of the water-soluble RelyX Try-In paste to verify fit and esthetics.
- If esthetics and fit are acceptable, remove veneer, rinse tooth and veneer thoroughly, dry and proceed with bonding procedure.
- If color adjustment is needed, select appropriate shade of RelyX Try-In paste, apply to veneer, seat, and examine for color and fit.
- When the correct shade has been chosen, remove veneer, rinse tooth and veneer thoroughly, dry and proceed with bonding procedure.

#### Silane Prime Veneer:

- Clean the bonding surface of the veneer by applying 3M™ ESPE™ Scotchbond™ Etchant (35% phosphoric acid) for 15 seconds, rinse and dry.
- Apply a single coat of the 3M™ ESPE™ RelyX™ Ceramic Primer to the bonding surface of the veneer and dry.



#### Etchant:

- Apply Scotchbond etchant to enamel and dentin for 15 seconds.
- Rinse for 10 seconds.
- Blot excess water leaving tooth moist.



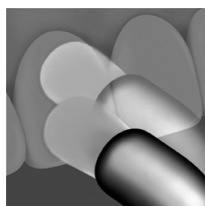
#### Adhesive:

- Using a fully saturated brush tip for each coat, apply 2 consecutive coats of 3M™ ESPE™ Single Bond Dental Adhesive to enamel and dentin.
- Dry gently for 2-5 seconds. **Do Not Light-Cure!**



#### Treat the Veneer:

- Apply 1 coat of adhesive to the silane treated bonding surface of the veneer.
- Dry gently for 2-5 seconds.
- **Do Not Light-Cure!**
- Apply selected shade of RelyX Veneer cement to the veneer.



#### Seat Veneers:

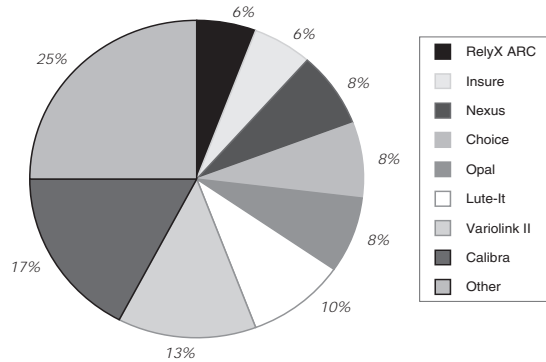
- Seat the veneer with gentle pressure.
- Spot cure the veneer to secure in place by light-curing on the facial surface with a small diameter light guide for 20 seconds. Avoid curing excess cement.
- Clean excess cement from margins.
- Alternatively, the excess cement can be “tack-cured” for easier clean-up.
- Light-cure each area and margin of the veneer for 30 seconds (40 seconds for the A5/Dark shade).
- Remove matrix strips and finish restoration.
- See product instructions for detailed curing and finishing information.

# Field Evaluation Results

A field evaluation was conducted in the United States to evaluate the clinical performance of the 3M™ ESPE™ RelyX™ Veneer Cement and 3M™ ESPE™ RelyX™ Try-In Pastes. Dentists were asked to use the system to place veneers and then evaluate and rate the handling, shades, shade matching and overall esthetic results. The results were compiled from responses from 59 dentists with approximately 784 veneers placed.

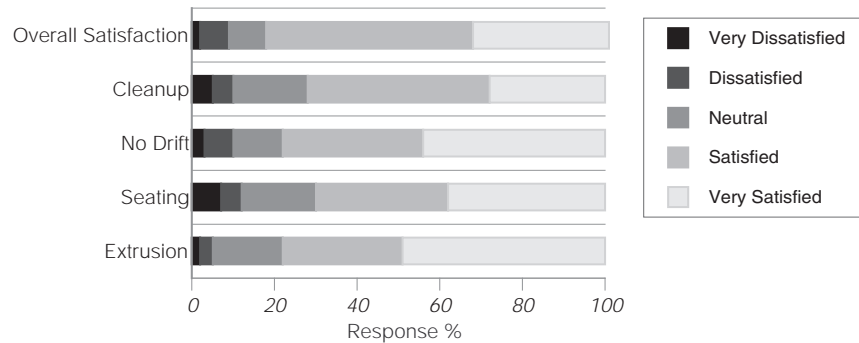
## 1. Product use % of evaluators

Figure 9.



## 2. Rate your level of satisfaction for the RelyX Veneer cement handling properties.

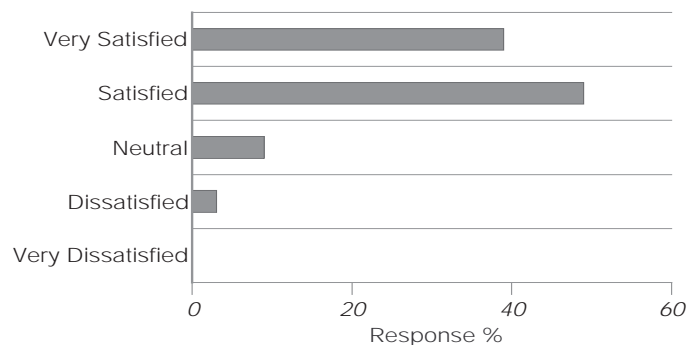
Figure 10.



70-83% were satisfied to very satisfied with the handling properties.

## 3. Compare the handling properties of the RelyX Veneer cement to those of your existing product.

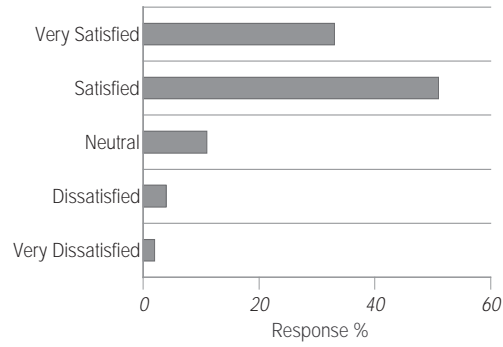
Figure 11.



68-75% rated the properties as better-much better when compared to their current system.

**4. Rate the translucent shade of the 3M™ ESPE™ RelyX™ Veneer Cement.**

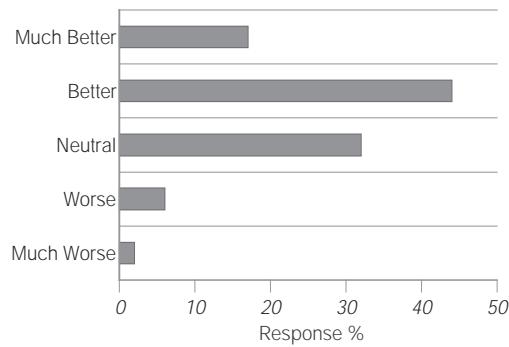
Figure 12.



84% were satisfied-very satisfied with the translucent shade of the cement.

**5. Compare the translucent shade of RelyX Veneer cement to that of your existing product.**

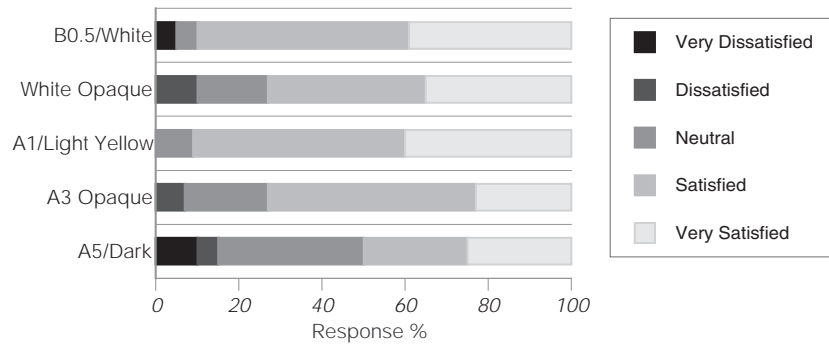
Figure 13.



61% rated the translucent shade as better-much better compared to their current cement.

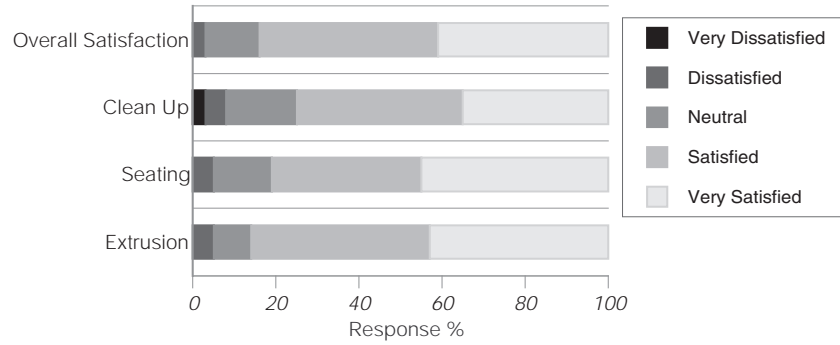
**6. Rate your level of satisfaction with the remaining RelyX Veneer cement shades.**

Figure 14.



**7. Rate your level of satisfaction for the following 3M™ ESPE™ RelyX™ Try-In Paste handling properties.**

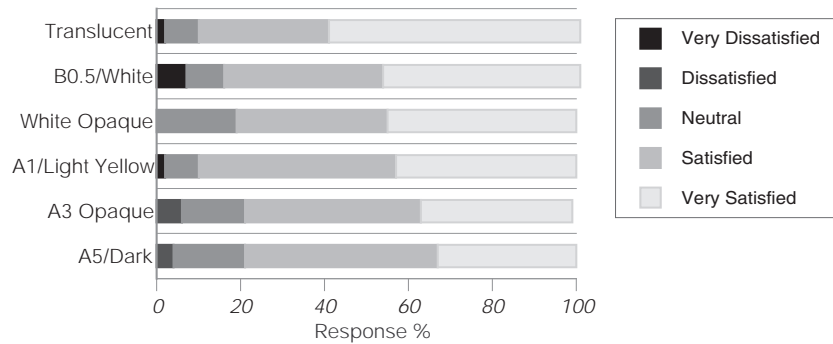
Figure 15.



75-85% were satisfied-very satisfied with the try-in paste handling properties.

**8. Rate your level of satisfaction with the color matching of the RelyX Try-In pastes to the cured cement.**

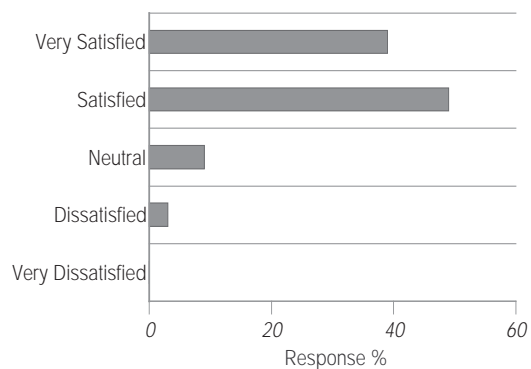
Figure 16.



80-90% were satisfied-very satisfied with the color matching properties of the system.

**9. Rate how satisfied you are with the overall esthetic results of the RelyX system.**

Figure 17.

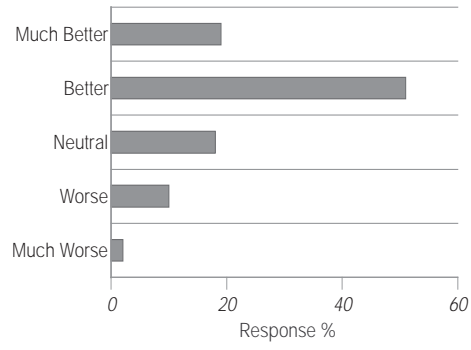


88% were satisfied-very satisfied with the overall esthetics of the system.



**10. Rate how the overall 3M™ ESPE™ RelyX™ Veneer Cement System compares to your current cement system.**

Figure 18.



70% rated the overall cement system as better-much better when compared to their current system.

---

## Questions and Answers

### ***Can the 3M™ ESPE™ Single Bond Dental Adhesive be cured on the tooth surface prior to seating the veneer?***

Yes, Single Bond dental adhesive has a low cured film thickness of approximately 10-15 microns and therefore can be placed and cured on the tooth without interfering with the proper seating of the veneer. This is how the Single Bond dental adhesive is recommended to be used with the 3M™ ESPE™ RelyX™ ARC Adhesive Resin Cement. However, it is not necessary to cure the Single Bond adhesive if the clinician is concerned with a potential fit problem. The adhesion studies were performed without curing the Single Bond adhesive layer on the tooth with very good results to both enamel and dentin. If the Single Bond adhesive layer is cured prior to seating, care should be taken to avoid any pooling of the adhesive prior to light curing.

### ***Does 3M™ ESPE™ RelyX™ Veneer Cement have a catalyst to allow it to self-cure?***

No, RelyX Veneer cement is a light-cure only system. It cannot be mixed with a separate catalyst to allow it to self cure.

### ***Can RelyX Veneer cement be cured with high powered lights?***

Yes, RelyX Veneer cement is very efficient in its curing ability with a variety of light sources. If a high intensity light such as the DMD™ Apollo™ 95E light be used, it is recommended to use a 9 second exposure per area of cure. The light must have the correct output in the 400-500nm wavelength range. Please check with the manufacture for the specific details when using other curing lights.

### ***Do the shades of RelyX Veneer cement correlate to the existing 3M™ Opal™ Luting Composite shades?***

The shades of the RelyX Veneer cement are modified versions of the Opal luting composite shades. Although there is not a direct correlation there is a close approximation.

RelyX Veneer	Opal Luting Composite
Translucent	Clear
B0.5/White	Similar to Low Opacity-Cool
White Opaque	Similar to a Medium-High Opacity Cool
A1/Light Yellow	Similar to Low Opacity-Warm
A3 Opaque/Yellow Opaque	Similar to Medium-High Opacity-Warm

### ***Does the viscosity of RelyX Veneer cement differ substantially to the Opal Luting composite?***

Yes, Opal luting composite is substantially thicker than RelyX Veneer cement. RelyX Veneer cement was specifically formulated to allow for easy dispensing and seating of the veneer without the risk of fracture and to allow the veneer to be seated completely to the margins. The unique “non-slumping” nature of RelyX Veneer cement allows the veneers to be placed easily but without concern about the veneers drifting or slumping. The non-slump feature of the high viscosity Opal luting composite was a desired property.

### ***Can the RelyX Veneer cement be used with 3M™ ESPE™ Prompt™ L-Pop™ Adhesive?***

No, at this time Prompt L-Pop adhesive is not indicated for use to cement indirect restorations.

---

# Instructions for Use

## 3M™ ESPE™ RelyX™ Try-In Paste

RelyX Try-In pastes are used to guide the dentist in the selection of the shade required for the final cementation with 3M™ ESPE™ RelyX™ Veneer Cement. The shades of RelyX Try-In paste specifically match the final cured shade of RelyX Veneer cement. RelyX Try-In paste contains a polyethylene glycol resin, a zirconia/silica filler and pigments. The RelyX Try-In pastes are water soluble for easy clean up.

### ***Precautions***

Use of protective eyewear and gloves are recommended for preventing eye and skin exposure to the product.

### ***Application***

1. To prepare the veneer, the internal bonding surface of a ceramic veneer surface should be microetched with a hydrofluoric acid etchant. The dental laboratory typically does this. The internal surface of a composite veneer should be roughened by sandblasting or air abrasion.
2. Remove the temporary restoration, if present, from the tooth. Clean tooth with pumice; rinse thoroughly and lightly air dry.
3. Check the fit and esthetics of the restoration by trying in the veneer with water or the Translucent shade of RelyX Try-In paste. If the fit and esthetics are acceptable, proceed directly to the bonding procedure using the Translucent shade of RelyX Veneer cement.
4. If color adjustment is needed, select the appropriate shade of RelyX Try-In paste. Apply RelyX Try-In paste directly onto the internal surface of the veneer. Gently seat the veneer onto the tooth preparation. With multiple veneers, start at the midline and seat veneers sequentially working back. The shade of RelyX Try-In paste is formulated to precisely match the corresponding cured shade of the cement.

Once the fit and esthetics are verified, remove the veneers and thoroughly rinse the RelyX Try-In paste from the tooth and restoration with a water spray and then dry.

The veneer is now ready for the application of the ceramic primer and final bonding.

### ***Storage and Use***

1. RelyX Try-In pastes are designed to be used at room temperature of 21-24° C or 70-75° F.
2. Shelf life in a refrigerator or at room temperature is 24 months. See outer package for expiration date. Storage in refrigerator ensures longest possible shelf life. Allow paste to come to room temperature before use.
3. Do not expose the paste to elevated temperatures.

## **Warranty**

3M ESPE will replace product that is proven to be defective. 3M ESPE does not accept liability for any loss or damage, direct or consequential, arising out of the use or the inability to use these products. Before using, the user shall determine the suitability of the product for its intended use and user assumes all risk and liability whatsoever in connection therewith.

## **3M™ ESPE™ RelyX™ Veneer Cement**

3M™ ESPE™ RelyX™ Veneer Cement is a radiopaque, light-cured resin cement indicated for bonding veneers fabricated of porcelain or composite. It is used in conjunction with 3M™ ESPE™ RelyX™ Try-In Pastes, 3M™ ESPE™ Single Bond Dental Adhesive System or 3M™ ESPE™ Scotchbond™ Multi-Purpose Dental Adhesive System and 3M™ ESPE™ RelyX™ Ceramic Primer. The RelyX Veneer cement contains a resin system consisting of a TEGDMA/BisGMA blend and a zirconia/silica filler with an average particle size of 0.6 microns.

## **Precautions**

RelyX Veneer cement contains acrylate resins. Avoid use of this product on patients with known acrylate allergies. To reduce the risk of allergic response, minimize exposure to these materials. In particular, avoid exposure to uncured resins. Use of protective gloves and a no-touch technique is recommended. If skin contact occurs, wash skin with soap and water. Acrylates may penetrate commonly-used gloves. If cement contacts glove, remove and discard glove, wash hands immediately with soap and water and then re-glove. If accidental contact with eyes or prolonged contact with oral soft tissue occurs, flush with large amounts of water. If irritation persists, consult a physician.

## **Instructions for Use**

RelyX Veneer cement is designed to be used in conjunction with Single Bond or Scotchbond multi-purpose dental adhesive systems and RelyX Try-In pastes. It is recommended that RelyX Veneer cement be used only with 3M ESPE adhesive systems where veneer bonding is indicated.

Note: 3M ESPE disclaims liability for claims arising from the use of RelyX Veneer cement with any adhesive other than Single Bond dental adhesive and Scotchbond multi-purpose dental adhesive.

1. To prepare the veneer, the internal bonding surface of a ceramic veneer surface should be microetched with a hydrofluoric acid etchant. The dental laboratory typically does this. The internal surface of a composite veneer should be roughened by sandblasting or air abrasion.
2. Remove the provisional restoration, if present, from the tooth. Clean tooth with pumice; rinse thoroughly and lightly air dry.
3. Check the fit and esthetics of the restoration by trying in the veneer with water or the Translucent shade of RelyX Try-In paste. If the fit and esthetics are acceptable, proceed directly to step 5 using the Translucent shade of RelyX Veneer cement.
4. If color adjustment is needed, select the appropriate shade of RelyX Try-In paste. Apply RelyX Try-In paste directly onto the internal surface of the veneer. Gently seat the veneer onto the tooth preparation. With multiple veneers, start at the midline and seat veneers sequentially working back. The shade of RelyX Try-In

paste is formulated to precisely match the corresponding cured shade of the cement.

Once the fit and esthetics are verified, remove the veneers and thoroughly rinse the 3M™ ESPE™ RelyX™ Try-In Paste from the tooth and restoration with a water spray and then dry.

5. The internal surface of the veneer should be thoroughly cleaned prior to applying the silane to remove any contaminants. The surface can be cleaned by applying 3M™ ESPE™ Scotchbond™ Etchant (35% phosphoric acid) for 15 seconds followed by rinsing and drying. Dispense 3M™ ESPE™ RelyX™ Ceramic Primer (silane) into a mixing well. Brush a layer of the silane onto the internal surface of the veneer. Lightly air-dry the surface for 5 seconds to evaporate the solvent.
6. Clean the prepared teeth using flour of pumice slurry. Rinse and lightly dry. Isolate the area to prevent contamination. Place matrix strips between teeth to prevent unwanted bonding to adjacent teeth.
7. Etch the tooth preparation. Apply Scotchbond etchant to both dentin and enamel for 15 seconds. Rinse for 10 seconds. Blot excess water leaving tooth moist. If the tooth is accidentally dried, rewet the bonding surface with water for 15 seconds and blot excess leaving tooth moist. Alternatively, a HEMA based desensitizing agent can be applied to the etched dentin according to the manufacturers instructions.
8. Apply the adhesive.

For 3M™ ESPE™ Single Bond Dental Adhesive: Dispense 2-3 drops of Single Bond dental adhesive into the disposable mix well. Do not allow solvent to evaporate from the adhesive prior to placement. Using a fully saturated brush tip for each coat, apply 2 consecutive coats of the adhesive to the etched dentin and enamel. Dry gently for 2-5 seconds to evaporate the solvent. Do not light cure. Apply 1 coat of Single Bond dental adhesive to the silane treated veneer. Dry gently for 2-5 seconds. **Do not light cure.**

For 3M™ ESPE™ Scotchbond™ Multi-Purpose dental adhesive: Apply 3M™ ESPE™ Scotchbond™ Multi-Purpose Primer to etched enamel and dentin. Dry gently for 5 seconds. Apply Scotchbond multi-purpose adhesive to the primed enamel and dentin. Do not light cure. Apply 1 coat Scotchbond multi-purpose adhesive to the silane treated veneer. **Do not light cure.**

9. Apply a thin layer of the selected shade of 3M™ ESPE™ RelyX™ Veneer Cement directly from the syringe onto the bonding surface of the veneer. Protect the cement from direct operatory light exposure.
10. Seat the veneer in place using gentle pressure. Excess cement will extrude out around the margins. Spot cure the veneer into place on the facial surface away from the margins using a small diameter light guide for 20 seconds to secure it in place.
11. Remove the excess cement from the margins using a blunt instrument or dry brush. Alternatively, the excess cement can be “tack-cured” for 5 seconds with a standard halogen light to allow the excess to gel and allow for easier cleanup.
12. Light cure the labial, lingual, interproximal and occlusal surfaces for 30 seconds each. The A5/Dark shade will require a 40 second exposure for each surface. **Note:** The cure times are indicated for a standard halogen curing light with a minimum light output of 400 mW/cm<sup>2</sup>.
13. Remove matrix strips. Finish marginal areas with 3M™ ESPE™ Sof-Lex™ Finishing and Polishing Strips and Discs. Check and adjust occlusion as necessary.

### ***Storage and Use***

1. 3M™ ESPE™ RelyX Veneer Cement is designed to be used at room temperature of 21-24°C or 70-75°F.
2. Shelf life in a refrigerator or at room temperature is 24 months. See outer package for expiration date. Storage in refrigerator ensures longest possible shelf life. Allow cement to come to room temperature before use.
3. Do not store in proximity to eugenol-containing products.
4. Do not expose the cement to elevated temperatures or intense light.

### ***Warranty***

3M ESPE will replace product that is proven to be defective. 3M ESPE does not accept liability for any loss or damage, direct or consequential, arising out of the use or the inability to use these products. Before using, the user shall determine the suitability of the product for its intended use and user assumes all risk and liability whatsoever in connection therewith.



3M, Opal, RelyX, Scotchbond, Sof-Lex, and Visilux are trademarks of the 3M Company.  
ESPE and Prompt L-Pop are trademarks of 3M ESPE AG.  
Apollo is a trademark of DMD (Dental/Medical Diagnostic Systems).  
Calibra is a registered trademark of Dentsply/Caulk.  
Choice is a registered trademark of Bisco, LTD.  
Finesse is a trademark of Dentsply Ceramco.  
Insure is a trademark of Cosmodent.  
Lute-IT! is a registered trademark of Jeneric Pentron.  
Nexus is a registered trademark of Kerr.  
Variolink is a trademark of Ivoclar/Vivadent.  
Vita is a trademark of Zahnfabrik H Rauter GmbH & Co. KG.

---

## **3M ESPE**

### **Dental Products**

3M Center, Building 275-2SE-03  
St. Paul, MN 55144-1000  
U.S.A.  
1-800-634-2249

### **Dental Products 3M Canada**

Post Office Box 5757  
London, Ontario, Canada N6A4T1



*40% Pre-consumer waste paper  
10% Post-consumer waste paper*

Printed in U.S.A.

© 3M IPC 2001 70-2009-2263-4