Clinical Report

EsCem® RMGI

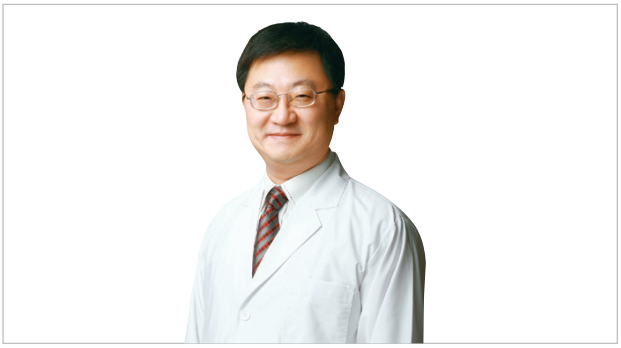
ABSOLUTELY **SMART**

Resin-modified Glass Ionomer Luting Cement

Speedy & Convenient

SPIDENT

www.spident.co.kr



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Product Components

- EsCem ™ RMGI Luting Cement Auto-mix syringe (9g): 2 EA
- Auto-mixing tip: 20 EA (10 EA package x 2)
- Eco-tip: 2 EA
- Mixing pad: 2 EA
- Product Manual & Technical Guide

Product Features

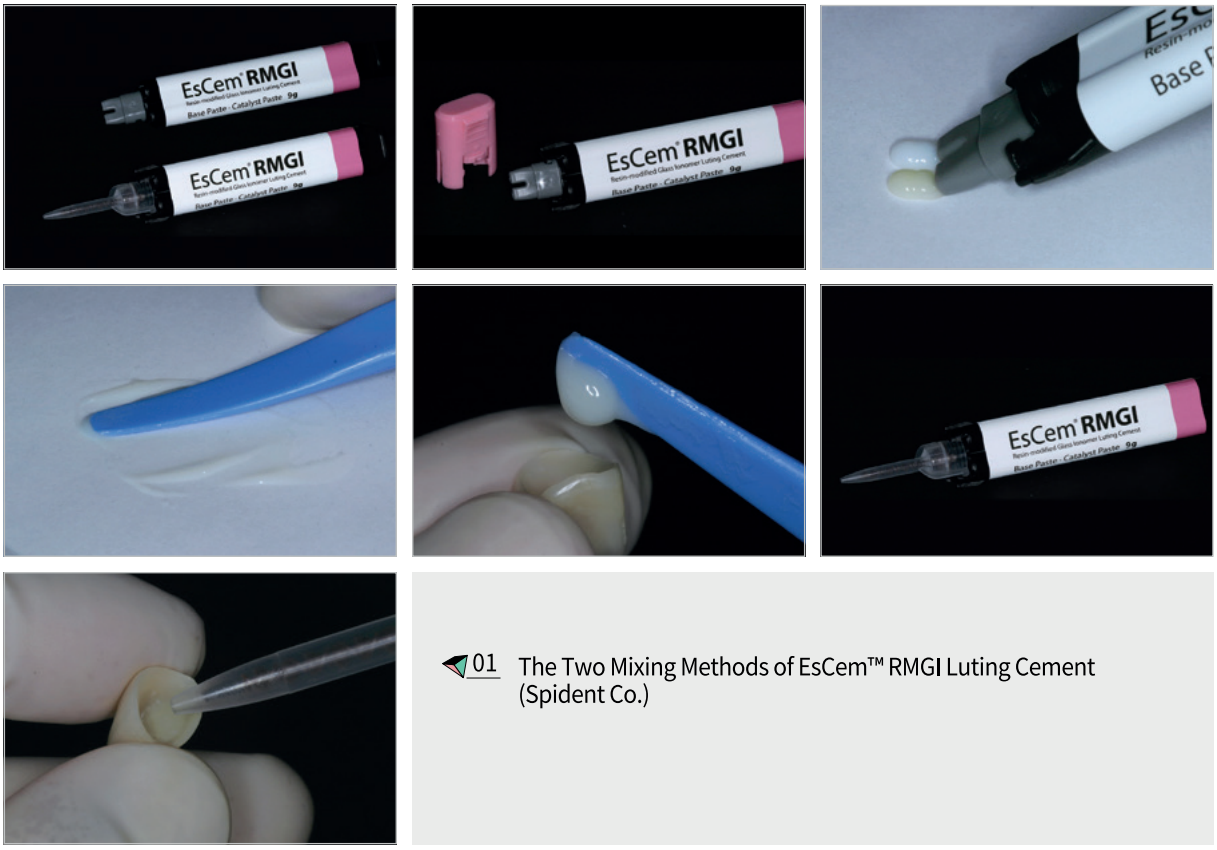
- The product primarily utilizes a self-cure mechanism, which plays a dominant role in the curing process. As a result, it delivers excellent performance in cases where light penetration is limited or obstructed
  (e.g., gold restorations, PFM crowns, metal restorations, and zirconia crowns).
- Since it features dual-cure polymerization, it allows for tack-curing via light polymerization, making the removal of excess cement more convenient.
  (5 seconds of light curing is recommended.)
- Depending on the case, both auto-mix technique (using an auto-mix tip for automatic mixing) and hand-mix technique (using an eco-tip for manual mixing) can be used at the dentist's discretion. (Dual dispensing type)
- It has an aesthetic shade with high brightness (value) and excellent light transmittance, making it suitable for cases where aesthetics is required.
- It has an optimal consistency, providing excellent handling properties and an ideal film thickness (19㎛).
- It contains zirconium silicate ($ZrSiO_4$) filler particles, providing excellent physical properties. The radiopacity of EsCem™ RMGI Luting Cement (Spident Co.) is 2.18 mm Al, which is slightly higher than that of dentin (1.96 mm Al).
- It possesses the inherent fluoride-releasing properties of RMGI cement, resulting in a low incidence of postoperative tooth sensitivity.
- It offers excellent cost-effectiveness while maintaining an economical price.

DISCRIPTION

EsCem™ RMGI Luting Cement (Spident Co.) is a resin-modified glass-ionomer cement (RMGI) that primarily sets through a self-cure mechanism. To enhance clinical usability, a light-curing property has been incorporated, enabling the cement to set through both a self-cure mechanism (chemical reaction) and a light-cure mechanism (light exposure). As a result, it has been developed as a dual-cure RMGI cement.

EsCem™ RMGI Luting Cement (Spident Co.) is a newly released product that incorporates a wide range of essential characteristics expected in modern dental cements.

First, it reflects the unique clinical environment of Korea by offering two types of tips, allowing practitioners to choose between automatic mixing and manual mixing based on their preference. While the auto-mixing tip is widely used, the eco-tip, which facilitates convenient material dispensing for manual mixing, is a unique accessory option found in only a few domestic products.
This flexibility enables practitioners to select the most optimized mixing technique for each clinical case. (Figure 1)

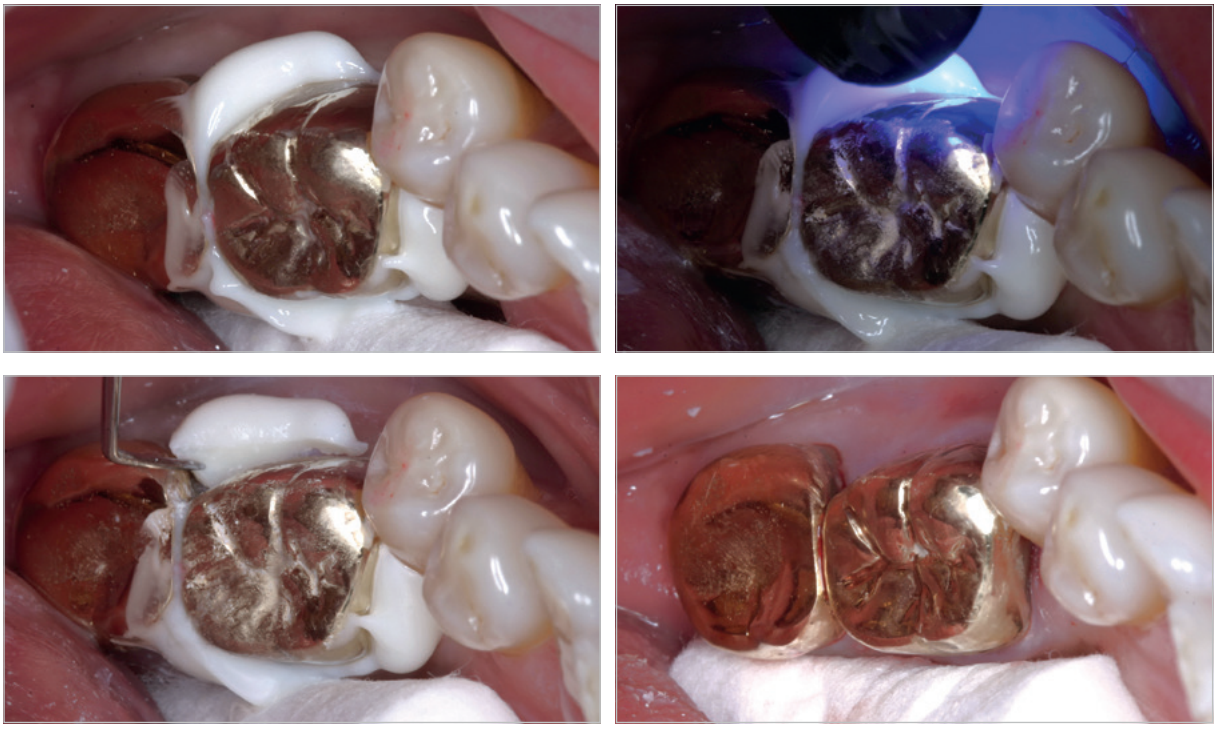


01 The Two Mixing Methods of EsCem™ RMGI Luting Cement (Spident Co.)

EsCem™ RMGI Luting Cement (Spident Co.) is designed to meet the diverse demands of discerning Korean clinicians by offering two mixing techniques. It includes an auto-mixing tip for automatic mixing, as well as an eco-tip for manual mixing. With user convenience in mind, a specially designed cover is also included for use with the eco-tip, ensuring ease of handling and application.

Next, the product offers a tack-cure feature, which significantly enhances clinical convenience. This characteristic, previously found only in some imported RMGI cements, has been successfully incorporated into an affordable Korean product, which is truly commendable.
In actual clinical procedures, the most critical moment when using cement is the removal of excess material. If the initial setting time is too long, it reduces clinical efficiency, while if it sets too quickly, it can turn into a nightmare for the dentist.

Therefore, the tack-cure feature, which allows practitioners to choose the optimal timing for excess cement removal, is a crucial aspect. As someone who has worked with many different materials, I consider ease of excess cement removal to be one of the most important factors when evaluating cement products.
From this perspective, EsCem™ RMGI Luting Cement (Spident Co.) demonstrates exceptional clinical satisfaction, making it a highly reliable choice for practitioners.
(Figure 2)



02 The “Tack-Cure” Feature of EsCem™ RMGI Luting Cement (Spident Co.)

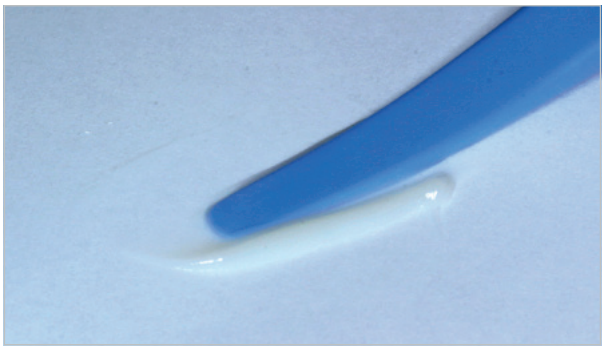
In general, RMGI-based cements primarily cure through a self-cure mechanism, making them ideal for use with restorations that have a metal base structure, where light penetration is limited. However, despite being a Korean product, EsCem™ RMGI Luting Cement (Spident Co.) offers a tack-cure feature, which is typically found only in top-tier products.

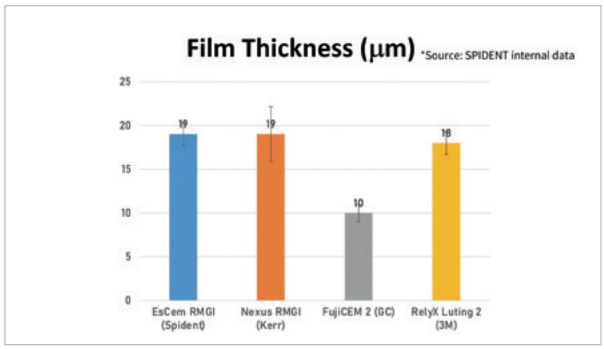
By performing light curing for just 5 seconds, excess cement can be removed at the optimal timing, ensuring a clean and efficient removal process without unnecessary waiting.

EsCem™ RMGI Luting Cement (Spident Co.) has an optimally balanced consistency, providing excellent handling properties in clinical use. During mixing, it exhibits a creamy texture, allowing for a smooth and controlled mixing experience. When seating onto the abutment tooth, it adapts well without excessive resistance, ensuring a secure fit.

Additionally, EsCem™ RMGI Luting Cement (Spident Co.) meets the standard film thickness for dental luting cements, with an average film thickness of 25㎛, ensuring optimal performance. (Figure 3)

After placing the restoration onto the abutment tooth, excess material does not flow uncontrollably around the margins, ensuring a clean application. Additionally, by performing a 5-second light cure (tack-cure technique), excess cement can be easily and neatly removed, enhancing clinical efficiency.



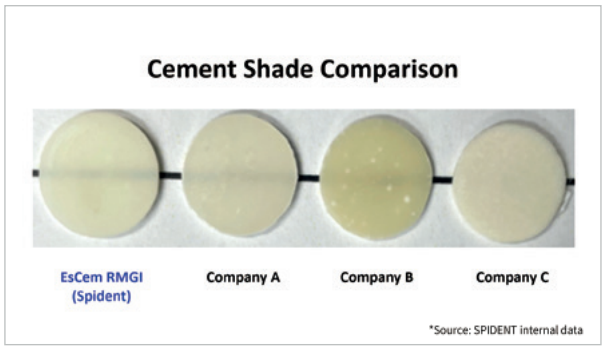


03 Film Thickness of EsCem™ RMGI Luting Cement (Spident Co.)

EsCem™ RMGI Luting Cement (Spident Co.) has a film thickness of approximately 19㎛, ensuring optimal consistency. Its flow characteristics provide a creamy texture during mixing, allowing for smooth and efficient clinical procedures. Additionally, it helps control the excessive flow of material, making the removal of excess cement after curing easier and more manageable.

EsCem™ RMGI Luting Cement (Spident Co.) is a resin-modified glass-ionomer cement designed for luting prosthetic restorations and is available in a single shade. As a result, the provided shade plays a crucial role in clinical applications.

As Dr. Seungkyu Lee, a renowned clinician in esthetic prosthetic restorations, has pointed out, in today's prosthetic dentistry, where esthetic restorations are the mainstream, the esthetic properties of cement can significantly influence the final outcome and should not be overlooked.

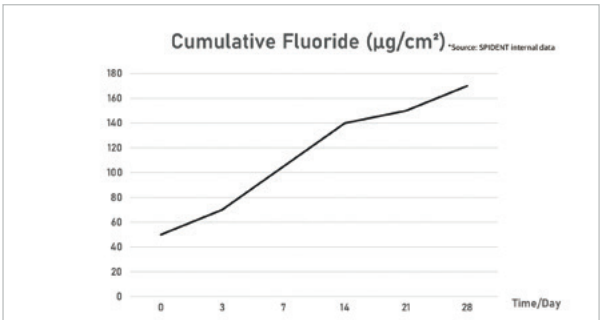


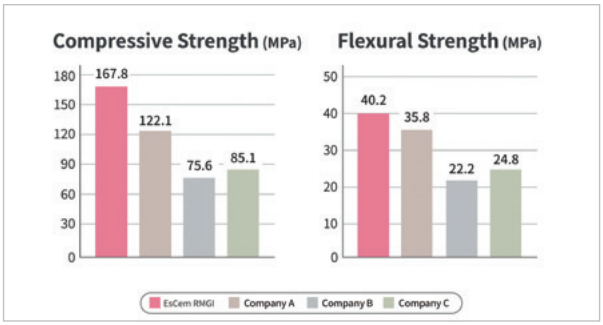
04 Shade of EsCem™ RMGI Luting Cement (Spident Co.)

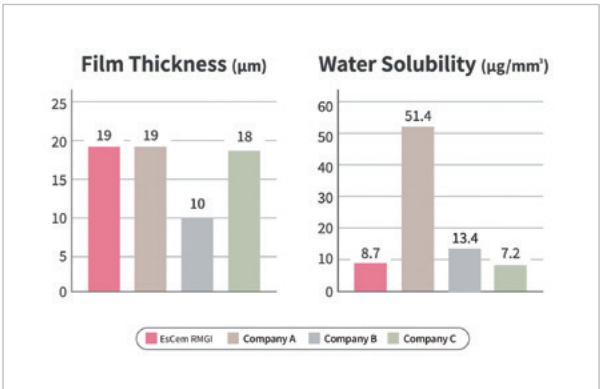
EsCem™ RMGI Luting Cement (Spident Co.) is available in a single shade. However, compared to competing products, it features a higher value (brightness) and excellent light transmittance. As a result, it can be used not only for posterior restorations but also in anterior restorations where esthetics are critical, without significant concerns.

As expected from an RMGI-based material, it exhibits excellent fluoride-releasing properties and demonstrates comparable physical properties to imported products.

While most RMGI cements primarily use alumino-silicate glass fillers, EsCem™ RMGI Luting Cement (Spident Co.) incorporates zirconium silicate ($ZrSiO_4$) fillers, providing enhanced radiopacity and superior physical properties. (Figure 5)







05 Physical Properties of EsCem™ RMGI Luting Cement (Spident Co.)

As a glass-ionomer (GI)-based material, EsCem™ RMGI Luting Cement (Spident Co.) inherently possesses excellent fluoride-releasing properties.

Additionally, it contains zirconium silicate ($ZrSiO_4$) particles, which provide superior physical properties compared to conventional products across various aspects.

RECOMMENDATION

EsCem™ RMGI Luting Cement (Spident Co.) has a film thickness of approximately 19㎛, ensuring optimal consistency. Its flow characteristics provide a creamy texture during mixing, allowing for smooth and efficient clinical procedures. Additionally, it helps control the excessive flow of material, making the removal of excess cement after curing easier and more manageable.

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CONCLUSION

No matter how outstanding a cement's performance may be, if its price is excessively high, the financial burden can make it difficult to use regularly in daily practice. Especially in today's challenging economic climate, private practitioners face increased financial pressure, making the high cost of dental materials an even greater burden. As a result, cost-effective domestic products have been gaining renewed attention.

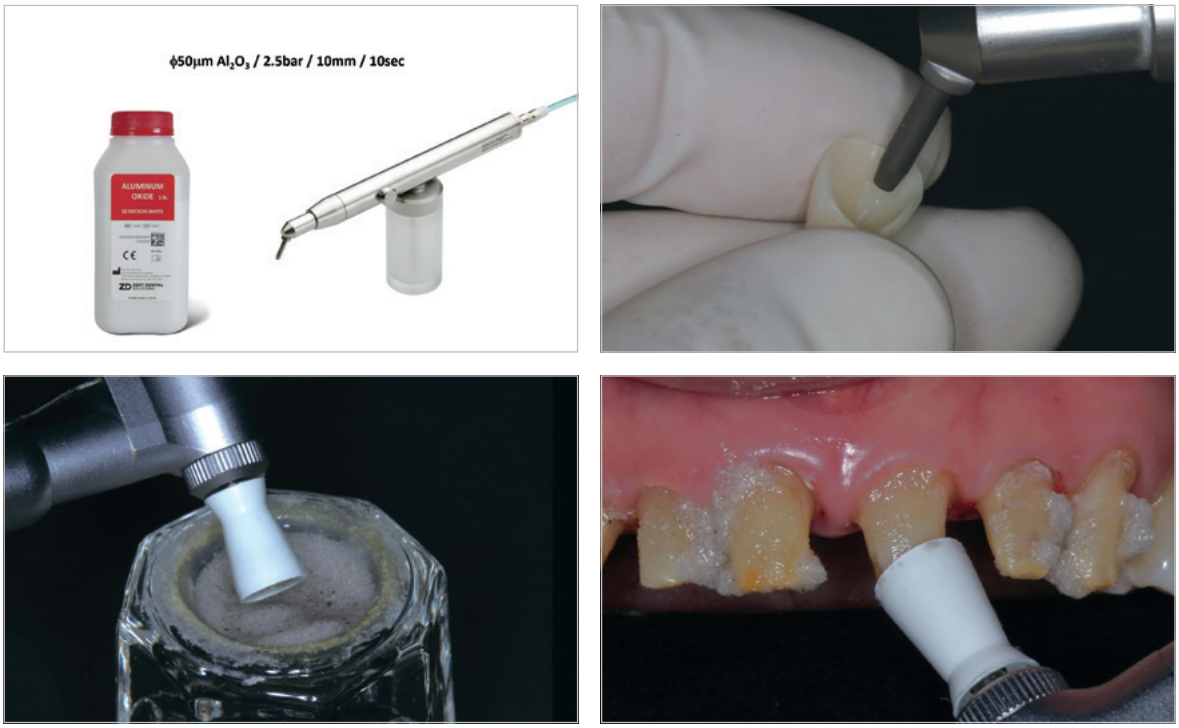
In fact, K-Dental Materials have been making a strong impact in the global market with their impressive quality and competitiveness. They hold significant market shares in the Middle East and Southeast Asia, and several products are also gaining recognition in the U.S. and Europe. Ironically, it is often said that the toughest market for K-Dental Materials is Korea itself.

Perhaps it is now time for the Korean market to properly evaluate these products that have proven successful abroad. The rigorous and high standards of Korean clinicians will be the ultimate test, and it will be interesting to see how these materials perform under real clinical conditions.

- For small restorations, such as inlays or one to two-unit restorations, the hand-mixing technique using the eco-tip is recommended. However, for cases involving three or more restorations, the auto-mixing technique with the auto-mix tip is preferable for improved efficiency and consistency.
- After completing the intraoral try-in of the restoration, the inner surface should be cleaned by sandblasting with 50 ㎛ Al_2O_3 particles. Then, EsCem™ RMGI Luting Cement (Spident Co.) should be mixed and applied to position the restoration properly.

  The surface of the abutment tooth should also be thoroughly cleaned using a rubber cup and plain pumice. After cleaning, it is recommended not to over-dry the tooth surface to maintain optimal bonding conditions.

  Gently wiping the abutment tooth surface with 2x2 gauze is sufficient to remove any excess moisture. (Figure 6)



06 Preparation for Prosthetic Cementation

After the intraoral try-in, the inner surface of the restoration, which may have been contaminated with saliva, should be sandblasted using 50㎛ Al_2O_3 particles at a distance of 10mm, with a pressure of 2.5 bar for 10 seconds.

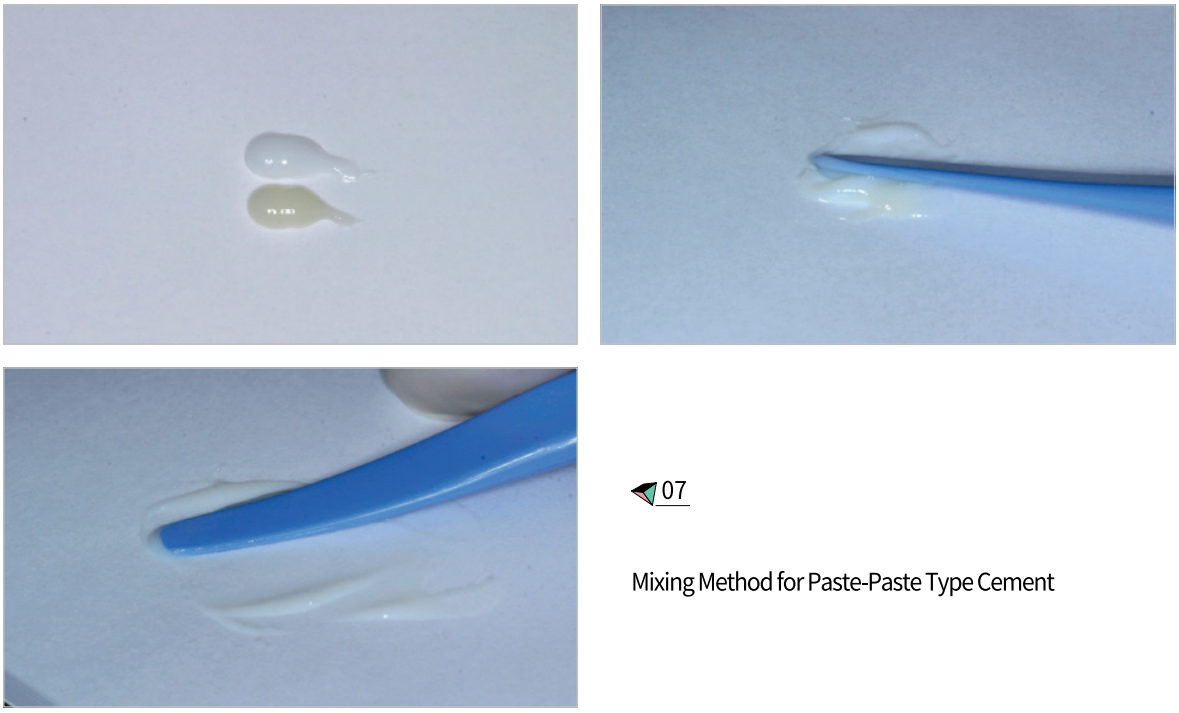
The abutment tooth surface should be thoroughly cleaned using a rubber cup and plain pumice, taking care to avoid gingival irritation or bleeding. After cleaning, it is recommended not to over-dry the abutment surface. Simply wiping away excess moisture with 2x2 gauze is sufficient.

- EsCem™ RMGI Luting Cement (Spident Co.) has a working time of 2 minutes and 30 seconds, providing sufficient time for application. The setting time under self-cure conditions is 5 minutes. For tack-curing to facilitate excess cement removal, a light-curing time of 5 seconds is recommended.

- When performing hand-mixing for small-quantity use, avoid gently stirring the cement. Instead, apply firm pressure with a spatula, pressing and spreading the cement mixture forcefully onto the mixing pad to ensure thorough blending (Figure 7).

  For powder-liquid type cements, the degree of mixing and quality of the cement can be visually assessed. However, for paste-paste type cements, it is more difficult to determine whether the cement has been properly mixed. Therefore, it is generally recommended to use an auto-mixing tip whenever possible. If hand-mixing is unavoidable, extra effort and attention should be given to ensure complete and thorough mixing.

  Since most cements contain acidic components, insufficient mixing can lead to weakened physical properties and prevent the cement's pH from reaching a neutral level, potentially causing postoperative hypersensitivity.



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Mixing Method for Paste-Paste Type Cement

Unlike traditional powder-liquid type cements, paste-paste type cements like EsCem™ RMGI Luting Cement (Spident Co.) make it more difficult to visually assess the mixing process. Since the two pastes have similar viscosity, it is easy to mistakenly assume they are well-mixed even with minimal blending. As noted by Dr. Seung-kyu Lee, a renowned expert in esthetic prosthetic restorations, most dental cements contain acidic components, which neutralize through a chemical reaction during the mixing process.

In other words, thorough and uniform mixing is essential to ensure a complete chemical reaction. If mixing is inadequate, not only will the physical properties of the cement be compromised, but highly acidic areas may remain within the mixed cement. These residual acidic regions are closely linked to post-operative hypersensitivity.

Therefore, when using paste-paste type cements, it is recommended to intentionally apply firm pressure while mixing, ensuring even distribution across a wide surface area of the mixing pad for optimal blending.

- For excess cement removal, it is recommended to use the "tack-cure technique", which involves light curing for 5 seconds before removing the excess material.