RelyX™ Luting Plus Automix

Resin Modified Glass Ionomer Cement

Technical Data Sheet

Introduction

RelyX™ Luting Plus Automix Resin Modified Glass Ionomer Cement from 3M ESPE is a radiopaque, fluoride-releasing, resin-modified glass ionomer luting cement. It is self-curing with an option for tack light curing of excess cement. Compositionally, it is based on RelyX™ Luting Plus Cement in the Clicker™ Dispenser, first marketed in 2003. Customer feedback, delivery system preferences and trends encouraged further modification to the original product. Hence, the following improvements have been made based on customer feedback.

1. Automix delivery system
2. Faster and easier—no hand mixing, direct delivery
3. Better—no guessing on cement quantity to dispense
4. Tack-light cure option for fast excess cement cleanup

3M ESPE

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Technology

RelyX™ Luting Plus Automix Cement is composed of two separate pastes dispensed from an automix syringe.

It has very similar setting reactions to the original Clicker™ Dispenser delivery system.

Like the original Clicker delivery, two setting reactions occur; an acid-base reaction between the glass and the polycarboxylic acid and a free radical polymerization of the methacrylate polymer and HEMA (2-hydroxyethylmethacrylate). As a resin modified glass-ionomer cement, the additional methacrylate reactions provide for higher strengths and reduced marginal solubility.

Furthermore, RelyX Luting Plus Automix cement Paste A and Paste B viscosity have been optimized for uniform mixing and physical properties when dispensed through an automix tip.

Paste A is composed of a radiopaque fluoroaluminosilicate glass (FAS glass), opacifying agent, hydroxylethylmethacrylate (HEMA), water, dispersion aid, and a reducing agent that allows for the self-cure methacrylate setting.

Paste B is composed of nonreactive zirconia silica filler, methacrylated polycarboxylic acid, HEMA, resin monomers, water, potassium persulfate and a photoinitiator.

The photoinitiator enables an optional tack light curing of the excess cement. Instead of waiting approximately two to three minutes for the self-cure gel phase to begin cleaning excess cement, there is now an option to light cure the excess cement for five seconds and begin cleaning immediately.

Indications for use

Permanent cementation of:

- Porcelain-fused-to-metal (PFM) crowns and bridges
- Metal crowns, inlays and onlays
- Crowns made with all-alumina or all-zirconia cores such as 3M™ ESPE™ Lava™ or Procera AllCeram
- Prefabricated or cast endodontic posts
- Orthodontic bands and appliances
- Porcelain-fused-to-metal (PFM), metal, all-alumina or all-zirconia core restorations on implant abutments

Adhesion to tooth structure

Like the original product in the Clicker Dispenser, RelyX Luting Plus Automix cement has an inherent ability to provide a molecular bond to tooth structure without use of separate etching and bonding techniques. Although some products do recommend use of a separate conditioner on the tooth surface to promote adhesion, RelyX Luting Plus Automix cement does not need a separate conditioning step.

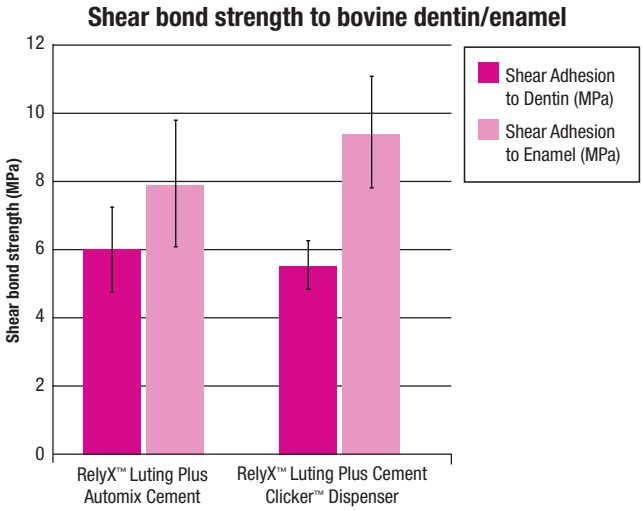

Fig. 1: Adhesion to bovine enamel and dentin.
Source: 3M ESPE internal data

Sustained fluoride release

RelyX Luting Plus Automix cement has sustained fluoride release, which is a key feature of glass ionomer-based cements.

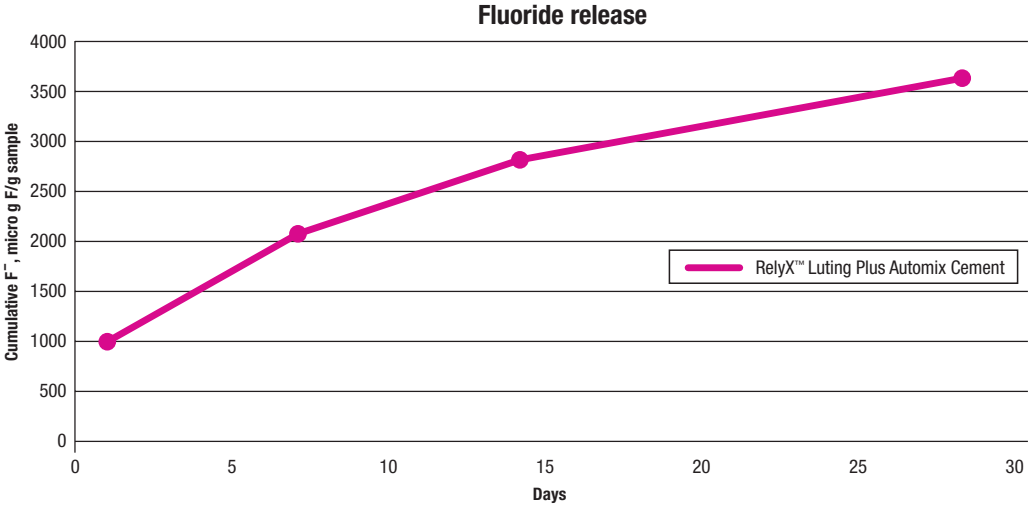

Fig 2: Sustained fluoride release of RelyX™ Luting Plus Automix Cement.
Source: 3M ESPE internal data

Mechanical properties

For general crown and bridge metal-based and strengthened-core ceramic restorations, the supporting strength and stability comes from the coping and does not rely as heavily on the cement. The physical properties of RelyX Luting Plus Automix cement passed all ISO 9917-2:2010 tests for a class 1, water-based, resin modified luting cement.

Property	RelyX™ Luting Plus Automix Cement	RelyX™ Luting Plus Cement in the Clicker™ Dispenser
Compressive Strength (MPa)	135 ± 5.2	141 ± 12.8
Diametral Tensile Strength (MPa)	22.3 ± 1.2	18.7 ± 2.4
Flexural Strength (MPa)	34.0 ± 3.0	32.1 ± 1.4
Film Thickness (microns)	19.0 ± 3.16	20.2 ± 3.34
Radiopacity (mm)	1.41 ± 0.10	1.30 ± 0.03

Fig. 3: Physical properties.
Source: 3M ESPE internal data

Field evaluation results

For RelyX™ Luting Plus Automix Cement, a clinical-use field evaluation was conducted. The evaluation included 133 dentists cementing a total of 1,231 restorations. The observation period was approximately five weeks and concluded with the dentists completing a survey. The survey questionnaire focused on their experiences during use and application of the product. Some of the key experiences are discussed below.

Faster and easier excess cement cleanup

Clinicians were asked to rate their experience with excess cement cleanup utilizing the tack-light cure option. A majority, 78%, agreed or strongly agreed that the tack-light cure option made it faster and easier for excess cement cleanup.

Tack light cure makes it faster and easier for cleanup.

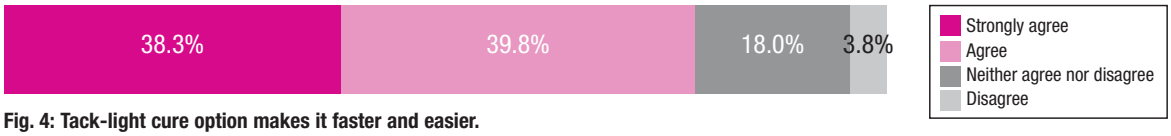

Fig. 4: Tack-light cure option makes it faster and easier.
Source: 3M ESPE internal data

Preferred automix delivery system

After using RelyX Luting Plus Automix cement, clinicians were asked to choose their preferred automix delivery system. A majority, 77%, indicated they preferred the RelyX Luting Plus Automix system.

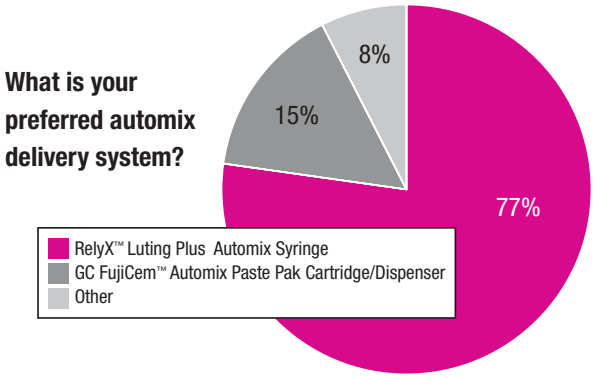

Fig. 5: Preferred automix delivery system.
Source: 3M ESPE internal data

Low post-operative sensitivity

RelyX Luting Plus Automix cement has low post-operative sensitivity of 1%. Excluding restorations placed on nonvital teeth, there were only 16 reported incidences of post-operative sensitivity out of 1,109 restorations placed.

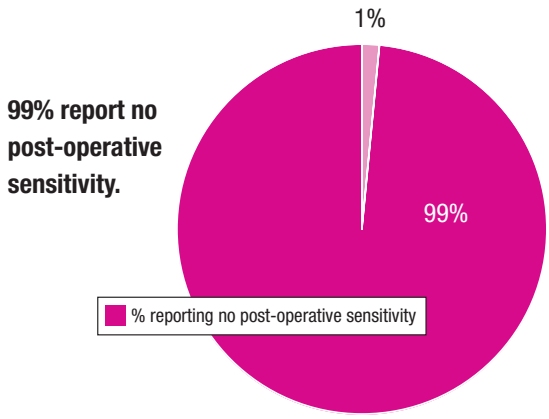

Fig. 6: Low post-operative sensitivity.
Source: 3M ESPE internal data

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