A NEW GENERATION OF GLASS Ionomers:

IONOSTAR® Molar
IONOSTAR® Plus
IONOLUX®
MERON
MERON Plus

Glass Ionomer Restoratives & Cements
NON-STICKY, EASY TO USE, HIGH FLUORIDE RELEASE
New VOCO Glass Ionomers

NON-STICKY – PACKABLE – HIGH FLUORIDE RELEASE – WEAR RESISTANT – NEW APPLICATION CAPSULE

As a global leader in the manufacturing of dental restorative materials VOCO has researched and manufactured Glass Ionomers for over 30 years. Over that time VOCO has become one of the leading glass ionomer brands in many markets throughout the world. With the launch of our newest generation, we are proud to introduce VOCO Glass Ionomers and their unique set of physical properties to the North American market.

VOCO Glass Ionomers are different than other brands utilizing glass developed to our products specific requirements that allows for higher translucency and therefore better esthetics. Additionally this glass technology gives our materials a higher fluoride release and better physical properties. All of VOCO’s glass ionomers utilize only a very pure form of poly-acrylic acid which achieves a higher bond strength to tooth structure and makes the use of an additional dentin conditioner obsolete.

General glass ionomer feedback from the dental market indicated that there was a need for more composite-like handling without the “sticky” phase. VOCO’s new glass ionomer restoratives provide a solution to this clinical problem as they are non-sticky and can be shaped with an instrument immediately after placement allowing for a more composite-like handling.

VOCO’s new direct activation application capsule eliminates the need of an extra activation device. This new direct activation capsule fits virtually in all other branded dispensers.

VOCO offers a variety of glass ionomers in order to satisfy the needs of every clinician and indication

<table>
<thead>
<tr>
<th>Chemistry</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast-set GI</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
</tr>
<tr>
<td>RMGI² Restorative</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
<td>10 sec</td>
</tr>
<tr>
<td>Luting Cement</td>
<td>3 min.</td>
<td>3 min.</td>
<td>2 min.</td>
<td>3 min.</td>
<td>3 min.</td>
</tr>
<tr>
<td>GI Luting Cement</td>
<td>3—5 min.</td>
<td>3—5 min.</td>
<td>3—5 min.</td>
<td>3—5 min.</td>
<td>3—5 min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temporary restorations</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restorations of deciduous teeth</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cavity liners</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Core build-up</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class V cervical restorations</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class III anterior restorations</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use on root caries</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small class I posterior restorations</td>
<td>●¹</td>
<td>●¹</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Large class I + II semipermanent posterior restorations</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Extended fissure sealing | ●

Luting on / of

<table>
<thead>
<tr>
<th>Core build-ups made of dental hard tissue, amalgam, composite and glass ionomers</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Crowns and bridges all-ceramic made of lithium disilicate, zirconium oxide or aluminium oxide ceramics</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Inlays and onlays made from precious metal and non-precious metal</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Root posts Metallic</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Orthodontic bands</th>
<th>IonoStar Plus</th>
<th>IonoStar Molar</th>
<th>Ionolux</th>
<th>Meron Plus AC</th>
<th>Meron AC</th>
</tr>
</thead>
</table>

¹ non occlusion-bearing class I cavities
² resin modified glass ionomer
VOCO’s New Direct Activation Capsule

SIMPLIFIED AND EASY-TO-USE FOR BETTER RESULTS

Many benefits are connected to the use of capsules in restorative treatment with glass ionomer materials these include:

- GI components are contained in optimum proportions and are thoroughly mixed
- Air inclusions (air bubbles) are minimized
- Mixing errors that negatively affect the products physical properties, impairing clinical success are reduced
- Fits virtually all other branded glass ionomer applicators/dispensers

No activator required

Extremely simple application without the need for an activator

An application capsule comprises two components. The first is the capsule body which contains the powder, and the second the capsule plunger of contrasting color which contains the liquid. The capsule can be activated by simply pressing it down on a hard surface (e.g., table) using your hand. The colored liquid plunger is pushed into the powder chamber, thus bringing the powder and liquid together. Then the capsule is mixed in a capsule mixing device at a (mixing) frequency of 4,000 to 4,500 oscillations per minute.

Opening the capsule

After successfully mixing, the capsule is opened by raising the outlet. In doing so, it is important that the application cannula is raised until it meets resistance, so that the capsule is opened correctly and the material passes through the cannula easily. The capsule can now be inserted into the applicator. If the cannula needs to be pointed in a certain direction within the applicator be sure to rotate the entire capsule to achieve the desired positioning of the cannula.

The VOCO Glass Ionomer materials have been formulated so that they can be applied immediately after mixing without any delay.
The search has been ongoing for a glass ionomer restorative material that is not only easy to apply but also offers other beneficial ease of use features, such as the ability to be condensed immediately after application. Today the search is over as VOCO is proud to introduce IonoStar Molar, the glass ionomer restorative with ideal non-stick handling and much more. IonoStar Molar is non-sticky, immediately packable after application and allows for an adjustable consistency by varying the mixing duration of the high-frequency mixer. This provides a solution for practitioners that need flexibility in regards to consistency (softer or firmer) to accommodate the clinical demand. Below are other benefits IonoStar Molar offers.

- High compressive strength and abrasion resistance
- Adjustable consistency based on duration of trituration:
  - 15 s = firm
  - 10 s = softer
- Does not stick to the instrument
- Difficult-to-access areas are reached more easily
- Can be modeled immediately after insertion and remains stable
- Perfect marginal adaptation during placement
Going further beyond handling and controlled consistency are IonoStar Molar’s material properties, represented by its high compressive strength and abrasion resistance and the proven VOCO Glass Technology, which has been firmly established for many years in the trusted VOCO glass ionomers.

**Fluoride release**

The fluoride released by IonoStar Molar protects effectively from secondary caries.

**Compressive strength**

The compressive strength of glass ionomers increases over the course of the retention time, as the material continues to mature and becomes firmer in the process.

**NON-STICK HANDLING**

IonoStar Molar incorporates VOCO’s ideal glass ionomer handling that provides the non-stick experience when condensing the material. This reduces headaches and saves time for both, the practitioner and the patient.
**Indications**
- Restorations of non occlusion-bearing class I cavities
- Semi-permanent restorations of class I and II cavities
- Restorations of cervical lesions, class V cavities, root caries
- Restorations of class III cavities
- Restoration of deciduous teeth (permanent)
- Base / liner
- Core build-up
- Temporary restorations

**Advantages**
- Does not stick to instrument for ease of application
- Adjustable consistency so you can pick your preference
- Perfect wetting behavior for excellent marginal adaptation
- Immediately packable can be shaped immediately after application and remains stable
- High translucency enables better esthetic results
- Excellent physical properties support long-lasting restorations
- High fluoride release that minimizes secondary caries

**Presentation**
- REF 2520  Kit application capsule 50 pcs.
  (10 × A1, 30 × A2, 10 × A3)
- REF 2522  Intro Kit application capsule 150 pcs. A2,
  AC Applicator type 1
- REF 2523  Intro Kit application capsule 150 pcs. A3,
  AC Applicator type 1
- REF 2524  Application capsule 20 pcs. A1
- REF 2525  Application capsule 20 pcs. A2
- REF 2526  Application capsule 20 pcs. A3
- REF 2532  Bulk Pack: Application capsule 150 pcs. A2
- REF 2533  Bulk Pack: Application capsule 150 pcs. A3
IonoStar® Plus is a fast-set glass ionomer restorative material with numerous special features. Its advantages begin when dispensed from VOCO’s new easy-to-use direct activation capsule, from which initial wetting characteristics result in optimal marginal adaptation. IonoStar Plus then becomes immediately packable without sticking due to a change in its viscosity within seconds after placement. These formulized changes provide the ideal viscosity at each stage of application.

IonoStar Plus’ fast-set of just two minutes allows work to continue immediately after condensing and shaping. This advantage shows its value particularly well when treating patients with low compliance such as children.

The diagram shows the curing behavior of the tested materials, measured by rheometer at 98.6 °F mouth temperature. Thanks to its initial, low-viscosity and consistency IonoStar Plus adheres perfectly to the cavity walls. It then sets rapidly, resulting in only a short wait before the finishing process can begin.

**ENHANCED PHYSICAL PROPERTIES TO SUPPORT LONG-LASTING RESTORATIONS**

**High Compressive Strength**

<table>
<thead>
<tr>
<th>Material</th>
<th>Compressive strength 4 x 6 mm (MPa) 24 h</th>
<th>Compressive strength 4 x 6 mm (MPa) 7 d</th>
</tr>
</thead>
<tbody>
<tr>
<td>IonoStar Plus</td>
<td>280</td>
<td>260</td>
</tr>
<tr>
<td>IonoStar Molar</td>
<td>270</td>
<td>250</td>
</tr>
<tr>
<td>Equia Fil</td>
<td>240</td>
<td>230</td>
</tr>
<tr>
<td>Fuji IX GP</td>
<td>220</td>
<td>210</td>
</tr>
<tr>
<td>Ketac Molar Aplicap</td>
<td>200</td>
<td>190</td>
</tr>
<tr>
<td>Ketac Fil Plus</td>
<td>180</td>
<td>170</td>
</tr>
<tr>
<td>Riva Self Cure HV</td>
<td>160</td>
<td>150</td>
</tr>
<tr>
<td>ChemFil Rock</td>
<td>140</td>
<td>130</td>
</tr>
</tbody>
</table>

Source: Internal measurement

Ketac Molar, Ketac Fil Plus, Fuji IX GP, Equia Fil, Riva Self Cure, and ChemFil Rock are not registered trademarks of VOCO GmbH.
IONOSTAR PLUS

High Fluoride Release

In March 2016 Tufts University’s Dental School tested the fluoride release of the top glass ionomer restoratives within the US market. As the chart shows VOCO’s IonoStar Plus was clearly superior in this study. IonoStar Plus had approximately 33% higher fluoride release than the next closest glass ionomer material. This is significant as one of the top reasons practitioners turn to glass ionomer restoratives is for that fluoride release and the benefits it offers the patient and restoration over time.

Clinical Case

IonoStar Plus is the first glass ionomer material to possess the fluorescence of a natural tooth, perfecting the naturally esthetic appearance. This fluorescence makes the material ideally suitable for anterior restorations, which have these same esthetic requirements.

GI Restorative Fluoride Release

Tufts University School of Dental Medicine – March 2016

VOCO is not the owner of the above trademarks

Clinical Case

Defects on teeth 12 and 13
Preparation
Application of IonoStar Plus
Packable viscosity

Working the restoration
Finishing
Polishing
Result

Source: Dr. Walter Denner, Fulda / Germany
Indications

Restorations of non occlusion-bearing class I cavities
Semi-permanent restorations of class I and II cavities
Restorations of cervical lesions, class V cavities, root caries
Restorations of class III cavities
Restoration of deciduous teeth (permanent)
Base / liner
Core build-up
Temporary restorations
Extended fissure sealing

Advantages

• Fast set time saves valuable chair time
• Does not stick to instrument for ease of application
• Two stage consistency for easy adaptation yet still packable
• Perfect wetting behavior for excellent marginal adaptation
• High translucency for better esthetic results
• Tooth-like fluorescence for better esthetic results
• Excellent physical properties support long-lasting restorations
• High fluoride release minimizes secondary caries

Presentation

REF 2540 Kit application capsule 50 pcs.
(10 x A1, 30 x A2, 10 x A3)
REF 2548 Application capsule 20 pcs. A1
REF 2543 Application capsule 20 pcs. A2
REF 2544 Application capsule 20 pcs. A3
REF 2545 Application capsule 20 pcs. A3.5
REF 2546 Bulk Pack: Application capsule 150 pcs. A2
REF 2547 Bulk Pack: Application capsule 150 pcs. A3
Ionolux®

LIGHT-CURED GLASS IONOMER RESTORATIVE WITH COMPOSITE-LIKE ESTHETICS

Ionolux is a light-cured resin modified glass ionomer restorative characterized by a broad range of indications, an enhanced level of esthetics, improved handling to reduce headaches during placement and outstanding physical properties.

Light-cured AND immediately packable

Ionolux is a light-cured glass ionomer material that allows practitioners to begin condensing and shaping the material immediately after dispensing/placing the glass ionomer in the restoration. This unique feature allows practitioners to decrease their procedure time and increase the procedure's ROI. When combined with Ionolux's ability to be light-cured these features provide more control for the dentist while still delivering the benefits of a fluoride releasing glass ionomer restoration.

Composite-like esthetics

Ionolux has enhanced esthetics that allow practitioners to offer a great fluoride-releasing solution to their patients without sacrificing the esthetics of the restoration. This allows the practitioner to provide an overall higher quality of care to both his/her general patient population as well as the specific demographics within that patient population that need it most (pediatric & geriatric).

Clinical cases

Case 1
Source: Dr. Isma Goltz, Bremen / Germany

Case 2
Source: Prof. Hervé Tassery, PU-PH, Faculty of Odontology, University of Marseille / France
Ionolux allows for less steps and decreased procedural time as no conditioning is necessary when placing it in the restoration.

Pediatric & Geriatric dentistry
Ionolux caters to those who need treatments that limit the necessary steps to the absolute minimum such as children and the geriatric population. Ionolux helps keep the relative “stress” involved with necessary procedures to a manageable level for both patients and practitioners. No conditioning is required, setting time is minimized with the light-cure and as a resin modified glass ionomer no adhesive step is required.

Strong physical properties
The physical properties of any material will be the determining factor as to the results and benefits it can provide both the practitioner and their patients. Ionolux offers improved physical properties compared to the market relevant glass ionomers currently available as seen below in compressive strength after thermo-cycling and water solubility (two key attributes within the category of resin modified glass ionomers). Ionolux provides results that reflect improved benefits to both the practitioner and the patient.

Fuji II LC, Photac Fil Quick, Riva Light Cure, and Riva Light Cure HV are not registered trademarks of VOCO GmbH.
**Indications**

Class III and V restorations, primarily cervical fillings and root caries
Restoration of deciduous teeth
Small class I restorations
Temporary restorations
Core build-ups
Lining

**Advantages**

- Composite-like esthetics
- Light-curing for fast finish
- Immediately packable after application
- Does not stick to the instrument, easy to shape
- Excellent translucency for better esthetic results
- High fluoride release minimizes secondary caries
- Highly radiopaque
- No dentin conditioner or adhesive needed

**Presentation**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF 2115</td>
<td>Kit application capsule 50 pcs.</td>
</tr>
<tr>
<td></td>
<td>(10 x A1, 30 x A2, 10 x A3)</td>
</tr>
<tr>
<td>REF 2117</td>
<td>Application capsule 20 pcs. A1</td>
</tr>
<tr>
<td>REF 2118</td>
<td>Application capsule 20 pcs. A2</td>
</tr>
<tr>
<td>REF 2119</td>
<td>Application capsule 20 pcs. A3</td>
</tr>
<tr>
<td>REF 2120</td>
<td>Application capsule 20 pcs. A3.5</td>
</tr>
<tr>
<td>REF 2121</td>
<td>Application capsule 20 pcs. B1</td>
</tr>
<tr>
<td>REF 2122</td>
<td>Bulk Pack: Application capsule 150 pcs. A2</td>
</tr>
<tr>
<td>REF 2123</td>
<td>Bulk Pack: Application capsule 150 pcs. A3</td>
</tr>
</tbody>
</table>
Meron Plus

OPTIMAL ADHESION TO ZIRCONIA WITH A LOW FILM THICKNESS

Meron Plus, the resin modified glass ionomer (RMGI) luting cement, combines the advantages of tested and tried glass ionomer and composite cement technologies. Thanks to its excellent physical properties, the RMGI cement can be used for permanent luting of all crowns, bridges, inlays and onlays made of metal, veneer ceramic and all-ceramics. Meron Plus is ideally suited for cementing high strength zirconium oxide ceramics. Additionally, Meron Plus is now available in VOCO’s new and easy-to-use application capsule that eliminates the need for an activator.

A study conducted by the University of Mainz in Germany measured the pull-off strength of different cementation materials (glass ionomer cements, resin modified glass ionomer cements and composites) following the cementation of zirconium dioxide crowns. While VOCO’s pure glass ionomer cement Meron delivered excellent values, it was Meron Plus AC that achieved the best values out of all of the materials across all the various cement categories included in the study. Meron Plus AC is ideal for the cementation or luting of high strength ceramic crowns.

Meron Plus is unique among RMGI luting cements as it does not require the additional step of placing a conditioner on the surface of the prepared tooth yet still delivers the high RMGI cement adhesion values. A benefit that saves both the practitioner and patient, time and money. Additionally, the added adhesion values allow its use in cases of low retention (e.g., short, tapered cores) as well as the cementation of orthodontic bands and root posts.

Meron Plus’ low film thickness at 11 µm provides yet another benefit making it easier to place restorations with accuracy and precision. Initially thixotropic before becoming more of a viscous consistency, Meron Plus avoids unwanted run-off while maintaining a long elastic phase that makes the removal of any excess material remarkably simple. Meron Plus’ long elastic phase also makes the removal of excess remarkably simple. Yet another “plus” is the low solubility of the cement.

**Technical data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness</td>
<td>approx. 11 µm</td>
</tr>
<tr>
<td>Radiopacity</td>
<td>&gt; 200 %Al</td>
</tr>
<tr>
<td>Usable cement</td>
<td>min. 0.14 ml</td>
</tr>
<tr>
<td>Working time</td>
<td>2 min.</td>
</tr>
<tr>
<td>Setting time</td>
<td>3–5 min.</td>
</tr>
</tbody>
</table>

Source: In-house measurement

Ketac Cem, Multilink Sprint, Maxcem, RelyX Unicem, Fuji PLUS, and Riva Luting Plus are not registered trademarks of VOCO GmbH.
Meron Plus

RESIN MODIFIED GLASS Ionomer Luting Cement

Advantages

- High adhesion values compared with conventional glass ionomer luting cements
- Precise marginal fit
- Thixotropic: Very good wetting behavior without unwanted run-off
- Low film thickness
- Moisture and acid resistant
- Simple removal of excess material thanks to long elastic phase
- Self-adhesive: secure and quick bonding
- Also suitable for high-strength zirconium dioxide ceramics
- Continuous release of fluoride

Presentation

Meron Plus

REF 1731  Powder 15 g
REF 1732  Liquid 10 ml

Meron Plus AC

REF 1736  Application capsule 50 pcs.
REF 1737  Application capsule 150 pcs.
REF 2331  Applicator – AC type 1

Meron

PROVEN GLASS Ionomer Luting Cement

Meron, a glass ionomer cement with many benefits has long been a leader within its category at the global level with millions of restorations placed in the last year alone. Meron flows and provides optimal wettability when initially dispensed within the restoration but then firms and stabilizes during seating of the restoration within the oral cavity. With a film thickness of just 15 μm, Meron enables a precise fit and avoids unnecessary occlusal adjustments. Additionally Meron provides bond strengths (Figure 1) more than twice that of other glass ionomer luting cements. With its accelerated and significantly higher fluoride release combined with its enhanced translucency, Meron provides valuable benefits to both the practitioner and the patient.

Figure 1: Adhesion: Shear Bond Strength

Source: Internal measurement

Riva Luting, Ketac Cem and Fuji I are not registered trademarks of VOCO GmbH.
The Glass Ionomer Mixer offers a modern design, is quiet and virtually vibration-free. Generating 4,600 rpm it creates a particularly homogeneous mixture of powder and liquid. Simple and straightforward, the GI Mixer has an adjustable mixing time of 0-99 secs, with a user-friendly capsule holder for headache-free insertion and removal.

The AC Applicator type 1 is an application forceps for inserting the contents of a VOCO application capsule directly into the cavity.

The AC Applicator type 2 is a low force, ergonomically designed dispenser for use to administer the contents of a VOCO application capsule (AC) directly into the cavity.

Both devices are made to VOCO high quality standards and are extremely easy to operate.

Advantages
- Excellent flow properties for enhanced wetting behavior
- Low film-thickness that saves occlusal adjustment time
- High translucency for esthetic results with ceramic
- Easy excess removal which saves time
- High fluoride release minimizes secondary caries
- High bond strength for higher success rates
- More available glass ionomer material per capsule so that one capsule is enough for larger restorations

Technical data
- Film thickness: 16 μm
- Radiopacity: 200 %Al
- Extractable amount: approx. 400 mg
- Working time: 3 min. (73 °F / 23 °C)
- Setting time: 3-5 min. (99 °F / 37 °C)
IONOSTAR\textsuperscript{\textregistered} MOLAR
IONOSTAR\textsuperscript{\textregistered} PLUS
IONOLUX\textsuperscript{\textregistered}
MERON
MERON PLUS