Multilink® Automix
The adhesive cementation system

A strong bond, proven performance.
A wide variety of restorative materials are available today. Due to their different properties, they demand modern, universal high-performance cementation systems with well-balanced properties.

Moreover, the current high-performance dental ceramics come in different levels of translucency, ranging from highly translucent to opaque. The opaque ceramics, and in some cases also the translucent yellowish versions, impair the passage of light and considerably reduce the effectiveness of curing lights.

As a result, luting cements should have self-cure as well as light-cure properties to establish a sound bond to dental restorations.

The Multilink Automix System fulfils your expectations and those of your patients with regard to high bond strength and long-lasting adhesion of the restoration to the tooth structure due to the patented, hydrolytically stable phosphonic acid monomers contained in the product and the “balanced performance” initiator system. Multilink Automix is characterized by its outstanding and well-balanced adhesion, irrespective of whether it is light-cured or self-cured.
Multilink Automix is used to cement indirect restorations made of all types of materials.

As a result of the excellent bond achieved to glass-ceramics, this system has shown to be far superior to other luting systems featuring so-called universal adhesives, which have appeared on the market in recent times.

Multilink Automix attains very high initial bonding values on IPS e.max lithium disilicate glass-ceramics. These values are maintained even after aging through thermocycling.

Apart from generating an excellent bond to glass-ceramics, the patented combination of functional methacrylates in Monobond Plus is responsible for establishing a sound and durable bond to oxide ceramics, base metal and precious metal alloys.

**Tensile bond strength on IPS e.max lithium disilicate glass-ceramics, initially and after aging (MPa)**

<table>
<thead>
<tr>
<th>Material</th>
<th>24 h</th>
<th>10,000 thermal cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multilink Automix</td>
<td>53.7</td>
<td>50.2</td>
</tr>
<tr>
<td>Monobond Plus</td>
<td>23.7</td>
<td>8.5</td>
</tr>
<tr>
<td>Relux Ultimate</td>
<td>24.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Optibond Universal*</td>
<td>20.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Panavia F2.0* Ceramic Primer*</td>
<td>32.6</td>
<td>16.1</td>
</tr>
</tbody>
</table>

**Tensile bond strength of Multilink Automix and Monobond Plus on different types of materials (MPa)**

<table>
<thead>
<tr>
<th>Material</th>
<th>3 days</th>
<th>167 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium oxide ceramic</td>
<td>49.7</td>
<td>40.6</td>
</tr>
<tr>
<td>Gold alloy</td>
<td>25.9</td>
<td>16.5</td>
</tr>
<tr>
<td>Palladium alloy</td>
<td>29.9</td>
<td>19.1</td>
</tr>
</tbody>
</table>

*R&D Ivoclar Vivadent AG, Schaan, Liechtenstein, 2012; application according to the directions for use.*

* These brands are not registered trademarks of Ivoclar Vivadent AG.

Azimian F, Klosa K, Kern M; Department of Prosthodontics, Propaedeutics and Dental Materials, School of Dentistry, Christian Albrechts University, Kiel, Germany; Evaluation of a new universal primer for ceramics and alloys; J Adhes Dent. 2012 Jun;14(3): 275-82.
Multilink Automix has achieved very good results in numerous clinical studies, some of which have been conducted over a long period of time. For example, the survival rate of restorations in terms of adhesion was 99% (9 studies, 291 restorations).

**Study on Multilink Automix and IPS e.max CAD**  
*Head of study: F. Beuer, LMU Munich, Germany*

Summary:  
Fifteen full contour or partially cut back IPS e.max CAD lithium disilicate restorations were cemented with Multilink Automix. After four years in situ, the survival rate was 100%. Not a single case of hypersensitivity or debonding was recorded. After an average observation period of four years, none of the monitored restorations had come loose.

In combination with IPS e.max CAD, Multilink Automix showed superior clinical performance over a four-year period.

**Study on Multilink Automix and IPS e.max CAD**  
*Head of study: J. Fasbinder, University of Michigan, USA*

Summary:  
Twenty-three IPS e.max lithium disilicate crowns (premolar and molar) were milled at the chairside with the CEREC 3D equipment and cemented with the adhesive technique using Multilink Automix. After four years, the clinical results were acceptable. One case of debonding was reported after three years. This crown was re-cemented with Multilink Automix.

IPS e.max CAD crowns that were cemented with Multilink Automix showed outstanding clinical performance over a period of four years. None of the restorations failed.

**Study on Multilink Automix and the adhesive cementation of cantilever bridges made of zirconium oxide ceramics**  
*Head of study: M. Kern, University of Kiel, Germany*

Summary:  
Fourteen anterior cantilever bridges made of zirconium oxide ceramic were cemented with the adhesive technique using Multilink Automix in combination with Metal/Zirconia Primer. After 20.8 months, one restoration became loose in an accident. This bridge was successfully re-cemented with the original luting material. If this type of accidental debonding is considered to be a technical (partial) failure, the survival rate after three years established with the SPSS software according to the Kaplan-Meier survival probability is 92.9%. If only the permanent loss of a bridge is assessed as a failure, but the renewed cementation is considered to be a success, the survival rate after three years is 100%.

Within a 20.8-month period, only one bridge cemented with Multilink Automix became loose as a result of an accident. A total of 14 bridges were cemented in this way. As a result, the survival rate of the restorations is 92.9%. The loosened bridge was re-cemented with Multilink Automix. After three years, it is still in situ.

Additional study results are provided in the Multilink Automix Scientific Report.
Since they were introduced in 2004, Multilink and Multilink Automix have been used to place more than 10 million indirect restorations.

The straightforward and standardized cementation protocol for all the different types of restorative materials and the excellent radiopacity and lifelike fluorescence of the cement all contribute to the successful placement of indirect restorations.

Radiopacity [in % Al]

<table>
<thead>
<tr>
<th>Material</th>
<th>Radiopacity [in % Al]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multilink Automix</td>
<td>350</td>
</tr>
<tr>
<td>RelyX Ultimate*</td>
<td>160</td>
</tr>
<tr>
<td>Nexus 3* dual cure</td>
<td>220</td>
</tr>
<tr>
<td>DUO-LINK*</td>
<td>120</td>
</tr>
<tr>
<td>Panavia F 2.0*</td>
<td>110</td>
</tr>
</tbody>
</table>

Enamel
Dentin

R&D Ivoclar Vivadent AG, Schaan, Liechtenstein, 2012 (measured according to ISO 4049)

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Fluorescence of resin cements compared with that of natural tooth structure

R&D Ivoclar Vivadent AG, Schaan, Liechtenstein, 2012

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**Excellent clean-up of excess**
Due to the advanced Easy Clean-Up formula and the Quarter Technique, excess Multilink Automix is now even easier to remove.

Depending on the curing light used, excess can be light-activated in 1 to 3 seconds per quarter surface (mesio-oral, disto-oral, mesio-buccal, disto-buccal). Within this time, the material acquires a gel-like consistency, which makes it easy to remove with a scaler.

**Excellent esthetics**
In situations where translucent glass-ceramic crowns are used to replace not only enamel but also large parts of the dentin, the restoration may assume a greyish appearance in these areas, if a translucent luting material is used.

A new shade has been specifically developed for such cases. Its reduced translucency ensures the esthetic appearance of the restoration.

Water-soluble glycerine-based try-in pastes corresponding to the Multilink Automix shades are now available, with which the final appearance of the restoration can be simulated and checked.

**Excellent margin quality**
In order to obtain a tight restoration margin, cement lines should be protected from oxygen exposure during the curing process. This prevents the formation of an inhibition layer.

For this purpose the product Air-Block Liquid Strip has been added to the Multilink Automix System. Completely cured cement joints ensure highly esthetic restorations with impeccable margins.
**Multilink Automix System Pack**
1 Automix syringe, 9 g (in the chosen shade)
1 Multilink Primer A+B, 2 x 3 g
1 Monobond Plus, 5 g
1 Liquid Strip, 2.5 g
Various accessories (mixing pad, mixing plate, applicators, mixing tips, flow charts)

- 627471WW  Transparent
- 627473WW  Yellow
- 627472WW  Opaque
- 645954WW  White

**Multilink Automix Starter Pack**
1 Automix syringe, 2.5 g, Transparent
1 Multilink Primer A+B, 2 x 1 g
1 Monobond Plus, 1 g
Various accessories (mixing pad, mixing plate, applicators, mixing tips, flow charts)

- 627571WW   Transparent

**Multilink Automix Refill**
1 Automix syringe, 9 g (in the chosen shade)
15 Mixing tips

- 615216WW  Transparent
- 615217WW  Yellow
- 615218WW  Opaque
- 645952WW  White

**Multilink Automix Try-In Paste**
1 Syringe, 1.7 g (in the chosen shade)

- 645956WW  Transparent
- 645957WW  Yellow
- 645958WW  Opaque
- 645959WW  White

**Multilink Primer A+B**

- 576825WW  Primer A+B, 2 x 3 g
- 613626WW  Primer A, 1 x 3 g
- 613627WW  Primer B, 1 x 3 g

**Accessories**

- 592435  Multilink Applicator Reg&Endo  50 applicators
- 645951  Mixing Tips short tapered Refill  15 tips
- 645955  Root Canal Tips  5 tips

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The way out of the cements maze

The **Cementation Navigation System**, a new multimedia application from Ivoclar Vivadent, offers dentists practical orientation and guidance in the selection of the best luting material for each case.

[www.cementation-navigation.com](http://www.cementation-navigation.com)
Multilink® Automix forms a part of the “Fixed Prosthetics” product category. The products of this category cover the procedure involved in the fabrication of fixed prosthetic restorations – from temporization to restoration care. The products are optimally coordinated with each other and enable successful processing and application.

Would you like to know more about the products of the “Fixed Prosthetics” category? Simply get in touch with your contact person at Ivoclar Vivadent or visit www.ivoclarvivadent.com for more information.