Signum® Bonding Agents
Repair solutions for every situation.

Giving a hand to oral health.
Signum® – for the love of perfection.

Signum® – metal bond.

Regardless of how you like to work, the Signum range with its modular design will have a product to suit you.

**Signum metal bond**
Bonding agent for metal based ceramic restorations

**Signum zirconia bond**
Bonding agent for zirconia based restorations

**Signum ceramic bond**
Bonding agent for all silicate ceramics

**Signum composite**
Signum composite flow
Metal-supported

**Signum matrix**
Flowable consistency for thin sections in the margin or incisal area with light optical properties.

**Signum cre-active**
Stains for characterisation, e.g., for fissure contrast, white striation, and a whole lot more.

**Signum accessories**
Bonding agent for all materials, polishing and finishing tools, polishing pastes, insulators, light curing units etc.

**Indications:**
- Bonding agent for the repair of metal based ceramic restorations together with Signum ceramic bond and direct composite (e.g., Venus Diamond).
- Bonding of metal framework surfaces to composite.
- Bonding of root canal posts, Maryland bridges to composite cement.
- Bonding agent for the re-creation of composite restorations.

**Features:**
- Introral and extroral application.
- Innovative cold bonding system based on new technology providing up to 300 percent better adhesion.
- Extremely thin layer of bonding agent results in a smaller total thickness of layering (up to 20%), therefore allowing more options for composite layering.
- Easy and efficient application.

**Comparison of shear bond strength of several bonding systems**

<table>
<thead>
<tr>
<th>Bonding System</th>
<th>Retention Flow Opaque</th>
<th>Metall Prime High</th>
<th>Retention Flow Opaque</th>
<th>Alloy Prime Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signum Metal Bond II</td>
<td>20 MPa</td>
<td>15 MPa</td>
<td>10 MPa</td>
<td>5 MPa</td>
</tr>
<tr>
<td>Signum Metal Bond I</td>
<td>15 MPa</td>
<td>10 MPa</td>
<td>5 MPa</td>
<td>2.5 MPa</td>
</tr>
</tbody>
</table>

*Shear bond strength test according to ISO 10477: 2004 University of Tübingen, Germany/Prof. Dr. rer. nat. Jürgen Geis-Gerstorfer

Bifunctional bonding molecules are bound permanently according to a lock-and-key mechanism. This ICT layer is much thinner when compared to the thin conventional bonding agents allowing the user more options Signum for application of additional composite layers.

**Signum composite**
**Signum ceramics**
**Signum® – zirconia bond.**

**Indications:**
- Bonding agent for the repair of zirconia based ceramic restorations together with Signum ceramic bond and direct composite (e.g. Venus Diamond).
- Bonding of zirconia framework surfaces to composite.
- Bonding of root canal posts, Maryland bridges to composite cement.
- Bonding agent for the re-creation of composite restorations.

**Features:**
- Intraoral and extraoral application.
- High bonding strength.
- Extremely thin layer.
- Easy and efficient application.

**Pack contents:**
- 1 x Signum zirconia bond I
- 1 x Signum zirconia bond II
- 1 x Mixing well
- Art.-No.: 66038530

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**Signum® – ceramic bond.**

**Indications:**
- For all silicate ceramics.
- Use for intraoral and extraoral repair at chairside with a direct composite.
- For preparation of the bonding surface before cementation, e.g. ceramic restorations using resin cements.
- To generate a dispersion layer in order to achieve connection/bond with (meth-)acrylate based composite (e.g. Venus Diamond).
- For elongation of pontics.

**Features:**
- Quick, safe and secure handling.
- Intraoral and extraoral application.
- No need for polymerisation.
- Extraordinary bonding strength and durability (up to 30 MPa according to ISO 10477).

**Pack contents:**
- 1 x Signum ceramic bond I
- 1 x Signum ceramic bond II
- 1 x Mixing well
- 25 x Disposable brush tips
- 5 x K1 Bur
- 1 x Instructions sheet
- Art.-No.: 66039817

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**Test of shear bond strength** (according to ISO 10477)

<table>
<thead>
<tr>
<th>Material</th>
<th>MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signum composite</td>
<td>25</td>
</tr>
<tr>
<td>Metal/zirconia primer</td>
<td>25</td>
</tr>
<tr>
<td>Signum ceramic bond II</td>
<td>20</td>
</tr>
<tr>
<td>Signum ceramic bond</td>
<td>15</td>
</tr>
<tr>
<td>Signum ceramic bond II</td>
<td>10</td>
</tr>
</tbody>
</table>

*Measurements done by R&D HKG-Wehrheim.

**Comparison of shear bond strength on silicate-ceramics** (according to ISO 10477)

<table>
<thead>
<tr>
<th>Product</th>
<th>MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signum ceramic bond I + II</td>
<td>30</td>
</tr>
<tr>
<td>Venus Diamond</td>
<td>25</td>
</tr>
<tr>
<td>CIMARA-Opakerliquid</td>
<td>20</td>
</tr>
<tr>
<td>CIMARA</td>
<td>15</td>
</tr>
<tr>
<td>HeraCeram</td>
<td>10</td>
</tr>
<tr>
<td>HeraCeram</td>
<td>5</td>
</tr>
</tbody>
</table>

*Measurements done by R&D HKG-Wehrheim.
Signum® – Ceramic repair process with exposed metal*.

1. Roughen the metal and ceramic
   • Use the K1 bur for the ceramic and for the metal surface.
   • Clean the surface by brush or air stream.

2. Signum metal bond I*
   • Apply the Signum metal bond I onto the metal and wait 15 seconds for it to evaporate.

3. Signum metal bond II*
   • Apply the Signum metal bond II onto the metal and then light cure for 40 seconds e.g. Translux Power Blue.

5. Signum ceramic bond I
   • Apply Signum ceramic bond I onto the ceramic and wait 10 seconds for it to evaporate.

7. Replace the broken veneer
   • Repair the defect area with direct composite (Venus Diamond/Venus Diamond flow. For the lab use Signum composite or Signum ceramis) according to the manufacturers instruction for use.

* With zirconia frameworks follow the steps in the same order, please use Signum zirconia bond instead of Signum metal bond.

Signum® – Ceramic repair process.

1. Straighten the fracture
   • Prepare the ceramic surface (if required) with a diamond bur under water cooling.

2. Roughen the surface
   • Roughen the surface with the K1 drill with a speed of 6000–10000 revolutions per minute.

3. Cleaning the surface
   • Remove the impregnated debris with brush or oil free air and keep the surface dry.

4. Silanisation
   • Apply 1x thin layer Signum ceramic bond I and allow to evaporate (10 seconds).

5. Bonding
   • Apply 1x thin layer Signum ceramic bond II and rub for 20–30 seconds to infiltrate.
   • Remove excess liquid with a dry brush or use airstream. The surface should remain moist, not too wet and not too dry.

6. Repairing
   • Repair the defect area with direct composite (e.g. Venus Diamond/Venus Diamond flow) according to the instruction for use.

*With zirconia frameworks follow the steps in the same order, please use Signum zirconia bond instead of Signum metal bond.
In compliance with the European guideline 93/42/EWG our medical devices are CE-marked according to the classifications.