Signum® Bonding Agents
Repair solutions for every situation.

Giving a hand to oral health.
Signum®
is, when one thing perfectly fits another.

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

<table>
<thead>
<tr>
<th>Signum metal bond</th>
<th>Signum zirconia bond</th>
<th>Signum ceramic bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding agent for metal based ceramic restorations</td>
<td>Bonding agent for zirconia based restorations</td>
<td>Bonding agent for all silicate ceramics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signum composite</th>
<th>Signum composite flow</th>
<th>Signum ceramis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signum composite flow</td>
<td>Metal-supported</td>
<td>Metal-free</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signum matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowable consistency for thin sections in the margin or incisal area with light optic properties.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signum cre-active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stains for characterisation, e.g. for fissure contrast, white striation, and a whole lot more.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signum accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding agent for all materials, polishing and finishing tools, polishing pastes, insulation, light curing units etc.</td>
</tr>
</tbody>
</table>
Signum® metal bond.

**Indications:**
- Bonding methacrylate based resins/composites to metal framework surfaces in conjunction with macromechanical retention.
- Bonding methacrylate based resins/composites to CrCo framework surfaces.
- Bonding agent for repairing composite facings (intraoral and extraoral).
- Bonding agent for repairing porcelain bonded restorations.
- Bonding between root posts, Maryland bridges and composite cement.

**Features:**
- Intraoral and extraoral 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.

**Pack contents:**
- 1 x Signum metal bond I
- 1 x Signum metal bond II
- 1 x Mixing well
Art.-No.: 66033913

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

![Comparison chart](chart.png)

*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 that of conventional bonding agents allowing the user more options Signum for application of additional composite layers.
**Signum® zirconia bond.**

**Indications:**
- Adhesive primer for frameworks, implant structures and single crowns made of ZrO2 for veneering with high-content veneer composite for a long term provisional solution.
- Intraoral and extraoral repairs with light-curing Venus or Charisma composites.
- Used to condition the surface of Zirconia Oxide frameworks permitting the adhesion of resin cement.

**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

**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 Metal/zirconia primer with Signum opaque F</td>
<td>5000 TWL</td>
</tr>
<tr>
<td>Signum composite Metal/zirconia primer without Signum opaque F</td>
<td>5000 TWL</td>
</tr>
<tr>
<td>Signum zirconia bond</td>
<td>17.5</td>
</tr>
<tr>
<td>Signum ceramis Metal/zirconia primer with Signum opaque F</td>
<td>20.0</td>
</tr>
<tr>
<td>Signum ceramis Metal/zirconia primer without Signum opaque F</td>
<td>20.0</td>
</tr>
<tr>
<td>Signum zirconia bond</td>
<td>20.0</td>
</tr>
</tbody>
</table>

*Source: Universitätsklinikum Jena (University Medical Centre), Fachbereich Prothetik und Werkstoffkunde (Prosthetics and Materials Science), Prof. Dr. med. dent. habil. H. Küpper, Dr. Roland Göbel, March 2008, documentation available.
Signum® ceramic bond.

Indications:
- Surface conditioning of silicate ceramic.
- Repair/restoration of ceramic defects with light-curing veneering or filling composites.
- Can be used intraorally or extraorally.

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 Instruction sheet
Art.-No.: 66039817

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

*Measurements done by R&D Kulzer-Wehrheim.

Venus Diamond
- Signum ceramic bond II
- Signum ceramic bond I
- HeraCeram

Arabesk® DA3
- CIMARA-Opakerliquid
- Cimara®
- HeraCeram

Tetric EvoCeram®
- HelioBond®
- Monobond-S®
- HeraCeram

Cimara® and Arabesk® are trademarks of Voco GmbH; Monobond-S®, HelioBond® and Tetric EvoCeram® are trademarks of Ivoclar Vivadent AG.
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 with e.g. Translux curing units (see manufacturers instruction for use).

4. Signum opaque F
   - Apply Signum opaque F onto the metal and then light cure for 40 seconds with e.g. Translux curing units (see manufacturers instruction for use).

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

6. Signum ceramic bond II
   - Apply the Signum ceramic bond II onto the ceramic and rub for 20–30 seconds to infiltrate. Remove the excess liquid.
   - According to manufacturers instructions for use remove excess liquid by brush or airstream. Don’t dry it! The surface has to remain moist.

7. Replace the broken veneer
   - Repair the defect area with Venus or Charisma composites. 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
   ■ Applying 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 has to remain moist.

6. Repairing
   ■ Repair the defect area Venus or Charisma composites according to the instruction for use.
Signum® composite

Our Signum composite veneering system is ideal for veneering metal frameworks. For long lasting restorations and exemplary occlusal comfort.

Find out more about Signum composite www.kulzer.com/signum