



# GrandTEC®

RESIN-IMPREGNATED GLASS FIBRE STRANDS  
FOR USE IN THE DENTAL ADHESIVE TECHNIQUE

The present requirements placed on you as a practicing dentist with respect to restoration and tooth conservation can only be fulfilled through the employment of the latest components from the field of adhesive technology. The combination of bonds, composites and your skill yield highly aesthetic restorations that are likewise strong and durable.

Even bonds and composites from the latest generation lack the adhesive strength for certain indications. These are:

- Splinting teeth for the purpose of a temporary, primary interlock after
  - Orthodontic therapy
  - Periodontal therapy
- Trauma therapy
  - For fixation of avulsed or loosened teeth
  - For fragment fixation after tooth fracture

One also needs a reliable appliance as support and foundation for the composite material:

- For the reinforcement/fabrication of provisional composite bridges
- For temporary space treatment after extraction and the replacement of the missing tooth with a synthetic tooth
- For temporary or semi-permanent treatment of a tooth space using an extracted, natural tooth
- For temporary treatment of a space during osseointegration after placing an implant

GrandTEC is a resin-impregnated glass fibre strand that considerably broadens your clinical opportunities. Modern adhesive technology and GrandTEC glass fibre ideally complement each other. Occurring chewing loads are distributed through the glass fibres in the restoration and the synergy effect from the interaction of the two components clearly increases the fracture resistance of the restoration. The resin-impregnated glass fibres chemically coalesce with the composite intensively, wherein the flow composite is utilised for the first layer on the glass fibres and fixation.

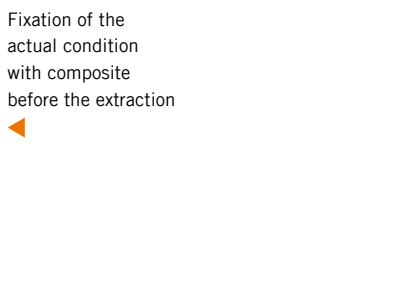
GrandTEC is a glass fibre strand that consists of multiple, individual parallel running glass fibres. These are impregnated with resin in a special procedure, which cure when exposed to a conventional polymerisation light. This resin bonds extremely well to traditional flow composites. Cumbersome, time-consuming and often uneven wetting of the fibre strands with a bond by the dentist are completely avoided. The GrandTEC glass fibre is individually sealed in an easily removable film that provides protection from light as well as damage. Each GrandTEC glass fibre strand is 55 mm long with a ca. 2 mm diameter.

GrandTEC can be shortened to the required length with traditional fine-tip scissors. The glass fibre must remain in the protective foil during shortening. The protective foil ensures problem-free handling of the impregnated glass fibres. It is removed directly before insertion into the patient's mouth or placement on the working model in the laboratory. GrandTEC is extremely flexible and can be shaped into the desired form and adapted with the same instruments used in the composite-adhesive technique. Tweezers with smooth tips facilitate positioning on the prepared teeth or dental technician model.

The customary materials from the dental adhesive technique are necessary for processing GrandTEC:

- Phosphoric acid for conditioning the tooth substance
- A light- or dual-curing bond as adhesive
- Light-curing flow composite and shapeable composite suitable for the indication use
- LED or halogen blue-light photo-polymerisation device

GrandTEC reinforced restorations can be finished and polished with the same rotating instruments and polishers used with composite restorations.



Fixation of the actual condition with composite before the extraction



Glass fibre still in its protective film

The aesthetic result of the immediate treatment

The extracted tooth – fixed in the space with GrandTEC



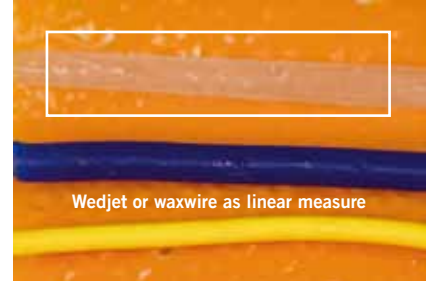
By courtesy of Dr. Walter Denner, Nürnberg

### Using an extracted tooth for an immediate treatment

The therapy was certain after clinical and radiological diagnostics: extraction. An incisal shell was fabricated on the unconditioned teeth with composite before the extraction, which is needed for setting the tooth crown in the space. The tooth was then extracted, the root severed and root canal sealed with composite. The natural tooth was then reconstructed to make a replacement tooth. The shell enables a problem-free and custom-fitted repositioning of the tooth in the space. After conditioning and bonding of the teeth bordering the space serving as anchorage, the reconstructed natural tooth was repositioned and fixed in the space using GrandTEC and Grandio Flow. As anticipated, the result was very aesthetic and could be realized immediately following the extraction without any preparation of the teeth bordering the space.

GrandTEC®

FIRST-CLASS AESTHETICS



Wedjet or waxwire as linear measure



**Space closure in the pre-molar area in an older female patient**

The restorations in the teeth that confined the spaces were removed and thus space created for anchorage of the GrandTEC glass fibre. The build-up of a tooth with a flowable composite was carried out in steps. This treatment is impressive with its excellent shade adaptation to the natural teeth and perfect conformance to the existing occlusal relationships.



Clinical photos on this page are courtesy of Dr. Henk Alting, Groningen (NL)



The adjacent photo shows a section from a GrandTEC glass fibre, bonded with Grandio Flow. The strong cohesion between the impregnated glass fibre and the flow composite are impressively documented here. The E modulus of the test specimen achieved a value of more than 13 GPa; the transverse strength is 5 × higher than with composites without the additional use of GrandTec glass fibre.



The adjacent enlargement shows the homogeneous progression of the densely packed glass fibres with GrandTEC.

GrandTEC®

CLINICAL USE



**Mandible front retainer**

The case requires a splint for a longer period of time after orthodontic treatment; clinically solved in one appointment with GrandTEC and Grandio Flow.



**Anodontia of 12**

The tooth to be replaced was first modelled in an aiding splint in the space and then a silicone shell was fabricated from it. After the aiding splint was removed and the neighbouring teeth were conditioned, the missing tooth was modelled and polymerised in layers with the assistance of the shell and a GrandTEC glass fibre.



This treatment can be removed after bone growth has ceased in the adolescent, female patient and, for example, replaced with an implant with an individual crown.

## GrandTEC®

### RESIN-IMPREGNATED GLASS FIBRE STRANDS FOR USE IN THE DENTAL ADHESIVE TECHNIQUE

#### Indications

Stabilisation of teeth

- after orthodontic therapy
- after periodontal therapy

For support in trauma therapy:

- for fixation and splinting of avulsed or loosened teeth
- for fragment fixation after fracture

For the reinforcement / fabrication of provisional bridges made from composite and provisional crown and bridge material

For temporary treatment after extraction and replacement of a missing tooth with the use of a synthetic tooth

For temporary or semi-permanent treatment of a tooth space with the use of an extracted natural tooth

For temporary treatment after placing an implant during the osseointegration of the implant

#### Advantages

- Pre-impregnated glass fibres – cumbersome wetting with adhesive averted
- High adhesive strength
- Shapeable and highly flexible
- Synergy effect between the glass fibres and composite: considerable improvement in transverse strength
- Can be used with both direct and indirect restorations
- Compatible with all light-curing bonds and filling composites
- Invisible in tooth-shaded composites
- Composite restorations: tooth-shaded and metal-free

#### Application Video

[www.voco.com/en/products/\\_products/GrandTEC/index.html](http://www.voco.com/en/products/_products/GrandTEC/index.html)



#### Presentation

- REF 1168 Glass fibre strands 5 × 55 mm
- REF 1169 Test Kit 5 glass fibre strands 55 mm each, model, application aids, GrandioSO Heavy Flow syringe 2 × 2 g A3, accessories

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