Bio Dentaplast 2

Processing instructions

English

Please read these processing instructions and the associated user manual carefully prior to using the product!

bredent

Contents

Introduction

The following process instructions describe all the steps necessary for processing Bio Dentaplast 2 in the thermopress 400 unit. The processing techniques described in this document enable the fabrication of dental prostheses with Bio Dentaplast 2, while at the same time maintaining the properties of the polymer in the finished dental product.
The thermopress 400 injection moulding unit automatically performs the injection process and the subsequent compression or finishing process during cooling. Application errors are thus avoided and a consistent material quality is always guaranteed for dentures made using Bio Dentaplast 2.

Please only use thermopress 400 system components, e.g., super-hard stone (Exakto-Rock S), thermoplastic polymers (Bio Dentaplast 2), flasks for investment and complementary materials (top.lign professional, uni.lign, poly.link IC). bredent does assume any liability if non-system aids and devices are used.

Important information

Symbol usage:
In addition to special warnings, the processing instructions also contain

symbols

to facilitate processing with special processing tips.

Safety information

Intended use:
The thermopress 400 is intended for use for the indications described in the instructions for use. Any other use is considered improper use.
The use of heat-resistant gloves, dust masks, safety shoes and goggles is strongly recommended when using this system.

Qualification of the user:
Users who work with the system must
• Be adequately trained for the relevant activities
• Know and observe the safety regulations regarding the use of the unit

The thermopress 400 unit must not be operated if the unit is showing signs of an electrical or mechanical fault!
The unit is not intended for use in potentially explosive atmospheres.

It must be ensured that these processing instructions are always available to the user.

Please follow the operation and maintenance manual (REF 009183EX) for the thermopress 400 injection moulding unit (REF 11000400).

The unit

Installation and operation

(see the operation and maintenance manual enclosed with the thermopress 400 unit)

Positioning of the thermopress 400 unit

To ensure a trouble-free injection process, the unit must be placed on a fixed, stable, flat and temperature-resistant surface.
The mains voltage supplied must be as specified in the unit's technical data.
Odours may be generated during the process of melting the various thermoplastics. The unit should, therefore, only be used in well-ventilated rooms or under an extraction hood. All ventilation slits on the unit housing must be kept sufficiently clear; a minimum distance of 20 cm must be maintained.
The desired language must be selected on the display before the first use (see section 7.3 Operation in the unit's operation and maintenance manual).

Materials and processing requirements

Bio Dentaplast 2 is a thermoplastic dental polymer and is characterised by excellent mould filling. For the pigments, inorganic microfillers are polymerised into the network of the Bio Dentaplast 2 polymer. The unique bredent extrusion process ensures a consistently homogeneous, methyl methacrylate-free material in a total of 13 different shades. It is characterised by its brilliant material quality and excellent translucency and elasticity.

It is now, for the first time, possible to mechanically and chemically bind these thermoplastic polymers to tooth-coloured composites (e.g., chemoplastic top.lign professional / light-curing crea.lign veneering composite). The surfaces are conditioned by sandblasting them with 110µ Al_2O_3 and the primers poly.link IC / visio.link. This allows a high degree of customisation when fabricating all types of removable dentures. This guarantees your patients highly aesthetic dentures and top-class tolerability.

Physical properties

Property	Unit	Value
Flexural strength	MPa (N/mm^2)	70 - 75
Young's modulus	MPa (N/mm^2)	2200 - 2400
Softening temperature (DSC)	°C	78
Bond strength	Conforms with EN ISO 20795-1:2013-06 "Denture base polymers".	
Water absorption	µg/mm^3	11
Solubility	µg/mm^3	1
Susceptibility to stress cracking	Holding time in sec.	>500

* The technical/physical values stated are typical measurement results and were obtained with samples produced in-house and the in-house measuring instruments.
Samples produced differently and different measurement instruments may produce different measurement results.

Indication and processing requirements

Bio Dentaplast 2 is indicated for the fabrication of removable and conditionally removable dentures, such as injection-type based for attachment and telescopic models as well as (orthopaedic) therapeutic occlusal splints. Due to its optimal colour and aesthetic properties, Bio Dentaplast 2 can also be used to fabricate non-invasive snap-on splints.

Indication	Temporary dentures (monolithic)	Removable dentures (monolithic)	Fitting (try-in)	Splints (snap-on)
				

Indication	Telescopic prostheses (secondary)	Bar prosthesis (secondary)	Attachment prostheses (secondary)
			

Indications and processing requirements

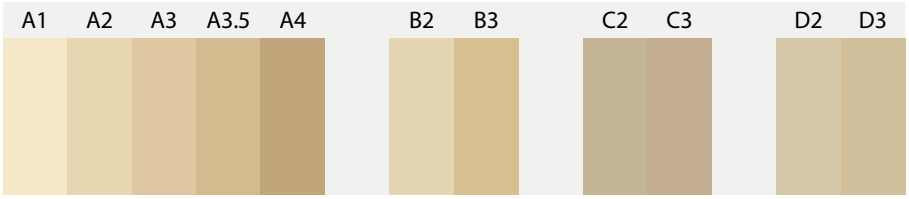
Table with an overview of all bredent thermoplastic materials:

Thermoplastic material	Plaster and mixing liquid to be used	Volume of Expandosol per 100 g plaster powder	Volume of distilled water	Hardening and expansion time
Bio Dentaplast	Expando-Rock, Expandosol	26 ml	0 ml	6 hours
bre.flex	Expando-Rock, Expandosol	19 ml	7 ml	6 hours
Bio Dentaplast 2	Exakto-Rock S	0 ml	20 ml	1 hour
bre.flex 2nd edition	Exakto-Rock S	0 ml	20 ml	1 hour
Polyan IC	Exakto-Rock S	0 ml	20 ml	1 hour

Colours

Bio Dentaplast 2 is available in the following colours:
11 VITA tooth shades
1 pink gum shade (PC20)
1 colourless transparent
This enables particularly high aesthetic standards to be reached.
The Bio Dentaplast 2 tooth shades can be optimally customised with top.lign professional crown and bridge material. The colour of the gum shade (PC20) has been coordinated with the chemoplastic uni.lign denture base material so that relinings and additions of any kind can be done with the same colour using uni.lign PC20.

bredent tooth shades (adapted to the Vita tooth shade guide):



bredent gum shade:

Colourless:

Packaging

The granules must be stored in a clean and dry place. The material has a shelf life of 2 years if stored correctly.
Due to the granules' sensitivity to moisture, each cartridge is individually shrink-wrapped in aluminium packaging. Only use heat-sealed cartridges! Cartridges without packaging must not be stored and must be disposed of immediately.

Material advantages:

- No residual monomers and therefore very biocompatible
- Very high elasticity and therefore no jamming in undercuts as with plastic materials
- Excellent aesthetic results due to natural translucency
- Easy to polish
- No water absorption even after prolonged exposure in the mouth
- Very good abrasion resistance
- Very high material homogeneity due to the industrial polymerisation process. No irritation of the gingiva and pulp by residual monomers as the copolymer does not contain methyl methacrylate.
- High level of process reliability thanks to:
  - Reproducible, fully automated melting and injection process using the thermopress 400 unit
  - Coordinated products (plaster, duplicating materials, thermoplastic, flask system, modelling waxes)
  - No mixing of plastic powder and monomer liquid
- Long-lasting colour stability and aesthetics
- Individual extension options with top.lign professional or uni.lign, using poly.link IC as a bonding agent
- Can be customised with crea.lign composites using visio.link as a bonding agent

Indications

1. Attachment model casting
2. Telescopic model injection-moulding base
3. beauty&bite splinting technique

1. Attachment model casting

Step 1:
Model preparation, duplication, fabrication of working model

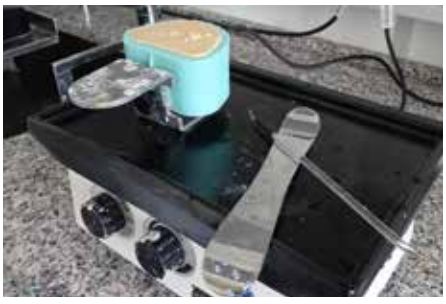
For duplication, the alveolar ridges are prepared with preparation wax and undercut bead seals (so-called hourglass fold).

The closing strip on the preparation wax pointing towards the palate (orally) should be shortened from underneath with a scalpel. This is the only way to create a retentive and gap-free transition from the saddle material to the Bio Dentaplast 2 framework.

Duplicate the blocked out master model with duplicating silicone (Exaktosil N21 REF 54001038). After a hardening time of approx. 30 minutes, demould the duplicating flask and, after a further 20 minutes (required for resetting), pour with Exakto-Rock S. Use the exact powder-liquid ratio specified (see Table 1). We recommend placing the duplicating flask in the pressure pot at **2 bar** during the duplicating silicone hardening time. After the pouring out of the negative mould, the plaster in the pressure pot should also harden.

Tabelle1: Mixing parameters for the super hard stone Exakto-Rock S

Material	Model	Exakto-Rock S (or alternatively Expando-Rock)	Distilled water	Hardening time
Bio Dentaplast 2	per	100 g	20 ml	2 hours



Cast the duplicating mould with Exaktosil N 21, then cast with Exakto-Rock S.

To make the devestment of Bio Dentaplast 2 easier, the model can also be made out of Expando-Rock with distilled water. A hardening time of 6 hours must be observed.

Step 2:
Wax modelling of the attachment model cast

The dimensions used for wax models should be very generous. In other words, the layers are cast thicker than they are for the model casting technique. A modelling wax with low melting point, e.g., Biotec modelling wax (REF 51000610), is ideal for the boiling out phase with boiling water.

The duplicate model is insulated against the Exakto-Rock S using light-curing die varnish. This is particularly recommended for delicate attachments to ensure that these areas become very smooth later on.

Wax modelling of an attachment model injection moulding base with pink plate wax.

Step 3:
Investing the duplicate model in the lower half of the flask

In order to keep the aluminium flasks clean over a long period of time, they should be lubricated with a thin layer of Vaseline. The plaster is then easier to remove.

Insulation of the aluminium flask.

The finished waxed-up attachment model injection moulding base is invested with Exakto-Rock S in the lower half of the flask up to the top edge of the plaster model.
After the duplicate model has been embedded in the lower half of the flask, the excess investment plaster is cleanly removed from the flask so that no plaster residue prevents the closure of the two halves of the flask. There should also be no undercut areas so that the counterpart can subsequently be easily loosened and removed from the bottom half of the flask.

All undercut areas must be sealed off with plaster to ensure that the flask halves open correctly.

In order to achieve reproducible results, we recommend using Exakto-Rock S. This super-hard stone prevents bite elevations thanks to its reduced expansion and ensures that the moulded object fits well. The high compressive strength of the plaster prevents damage to the model and the moulded object.

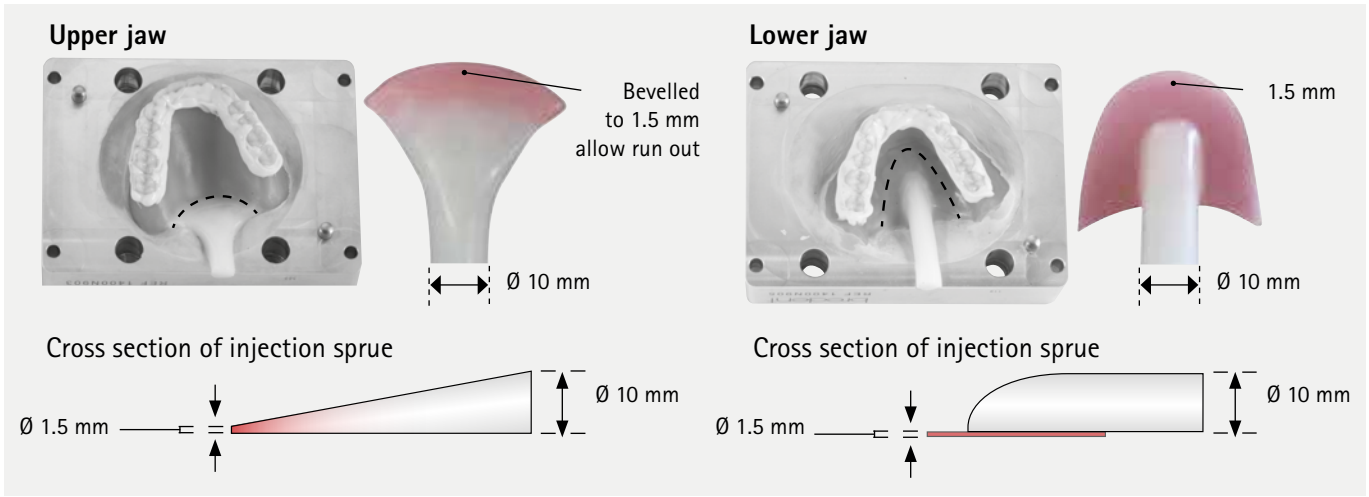
Step 4:
Spruing the model

The sprue channel for the filling with molten Bio Dentaplast 2 is attached using a 10-mm thick special wax profile. The film sprue technique should be used here. This means that the entire lingual area of the lower jaw is sealed with a 1.5 mm-thick pink wax plate. For an upper jaw with closed modelling of the palate, the 10 mm wax channel can be applied in the area of the palatal vibrating line. This ensures that the liquid Bio Dentaplast 2 can be injected into the framework geometry during the injection process with the same distance and injection pressure from the centre of the flask, thus ensuring an even distribution.

Spruing with 2 sprue channels.

As an alternative to film spruing, the model can be sprued with two feed channels (Ø 5mm).

Diagram of the film sprue technique for the upper and lower jaws



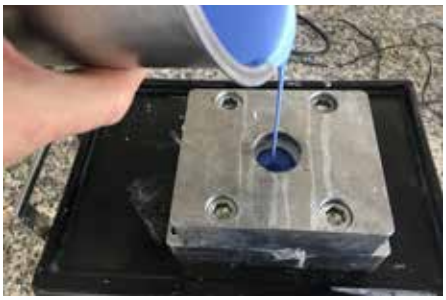
Step 5:
Preparation and investment of the flask halves for the injection process

The wax model has been finished and the film sprue attached. The next step is to close the two halves of the flask and screw them together tightly. To ensure that the two flask halves can be opened and separated from each other without any damage for the wax model boiling out phase, the plaster surfaces must be insulated from one other with plaster separating liquid.

Once the insulating layer has dried, the flask can be closed and tightened firmly with the 4 socket head screws. Please make sure that the screws are not screwed too tightly, otherwise it will not be easy to loosen them again after the pressing process. The mixed plaster is poured in through the circular opening on the upper part of the flask using a dental vibrator to ensure there are no bubbles.

After the class IV super-hard stone has been allowed to set for 40 minutes, the 4 screws on the flask can be loosened and removed. The flask halves are then levered apart using a plaster knife at the recesses provided in the corners. Heating both halves of the flask in a warm water bath for a short period has been shown to make separating the flask easier. Both halves of the flask can then be opened more easily as the wax has softened.

As soon as the flask halves have been separated from one another, the excess wax is boiled out with boiling water and removed without residue. A special boil out unit can be used for this.



The firmly screwed flask is filled with class IV super-hard stone (Exakto-Rock S or Fluid-Rock). After approximately 40 minutes, the flask halves can be opened and the wax boiled out.

Insulate the still warm, but dry, model with Acrylic Sep directly. For the initial insulation with Acrylic Sep, this layer of insulation should only be applied thinly. If it is applied too thickly, thin layers of dry separating liquid may form if application is repeated and flake off from the plaster. This creates the risk of imperfections in the injection-moulded objects.

To avoid condensation forming inside the closed flask, the flasks should only be closed in the thermopress device shortly before the injection process. This extends the drying and flash-off time for the plaster and the insulation.

Removing the plaster and wax residues oil-free immediately after the boiling out process using a soft toothbrush and washing-up liquid has proven to be successful.

Step 6:
Injection process and devestment of the injection-moulded attachment

The injection process is carried out in the thermopress 400 using the parameters recommended for Bio Dentaplast 2. For a more detailed description, see the "Pressing process in the thermopress" section of these processing instructions.

After the flask has cooled and the screws have been removed, the two halves of the flask can be separated by gently hitting the flask with a hammer. Plaster residues are removed and the injection sprue disconnected. The injection-moulded attachment is then processed with the thermopress processing set (REF 33000830).

After the injection process has been completed, the two halves of the flask are separated and the injection-moulded mould is removed from the plaster counterpart.

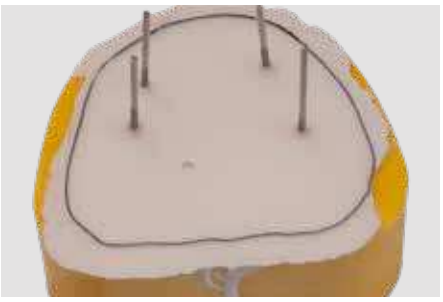
2. Telescopic model injection-moulding base

Step 1:
Model preparation, duplication, fabrication of working model

In order not to damage the master model made of class IV super hard stone or Exakto-Form during an injection process and not to destroy it during devestment, we recommend fabricating a duplicate model from Exakto-Rock S (REF 5700SB50).

First, the blocked out master model is duplicated with duplicating silicone (Exaktosil N21 REF 54001147).
After a hardening time of **approx. 30 minutes**, the duplicating flask can be removed, and then after a resetting time of **20 minutes**, it can be cast with Exakto-Rock S.
The exact powder-liquid ratio (see table on page 6) must be used.
We recommend placing the duplicating flask in the pressure pot (2 bar) during the duplicating silicone's hardening time. After the pouring out of the negative mould, the plaster in the pressure pot should also harden.

Exakto-Rock S duplicate model.



Use of metal reinforcing wires prevents thin dies breaking during the pressing process.

To prevent incorrect pressing caused by dies breaking, reinforcing pins (REF 99300127) can be placed in the still-liquid plaster in the dies. The telescopes can be cast bubble-free with the help of the transfuser (REF 390S0001) thanks to its flexible silicone tip.

Step 2:
Wax modelling of telescopic model injection-moulding base

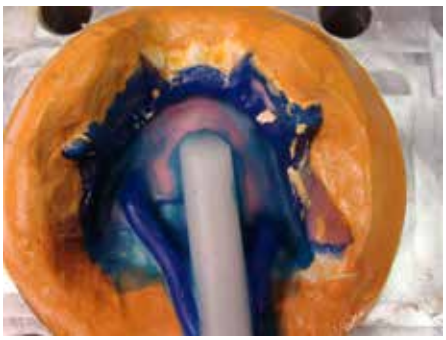
The dimensions used for wax models should be generous. In other words, the layers are cast thicker than they are for the model casting technique. A modelling wax with low melting point, e.g., Biotec modelling wax (REF 51000610), is ideal for the boiling out phase with boiling water.

Example of a wax model of a telescopic secondary construction on 4 telescopes.

Step 3:
Investing the duplicate model in the lower half of the flask:

In order to keep the aluminium flasks clean over a long period of time, they should be lubricated with a thin layer of Vaseline. The plaster is then easier to remove.

The duplicate model with the waxed-up telescopic prosthesis is ready for investment in the flask halves and is now invested in the lower half of the flask up to the upper edge of the model plaster with a class IV super-hard stone (Exakto-Rock S). The plaster should fill the undercut areas of the duplicate model.

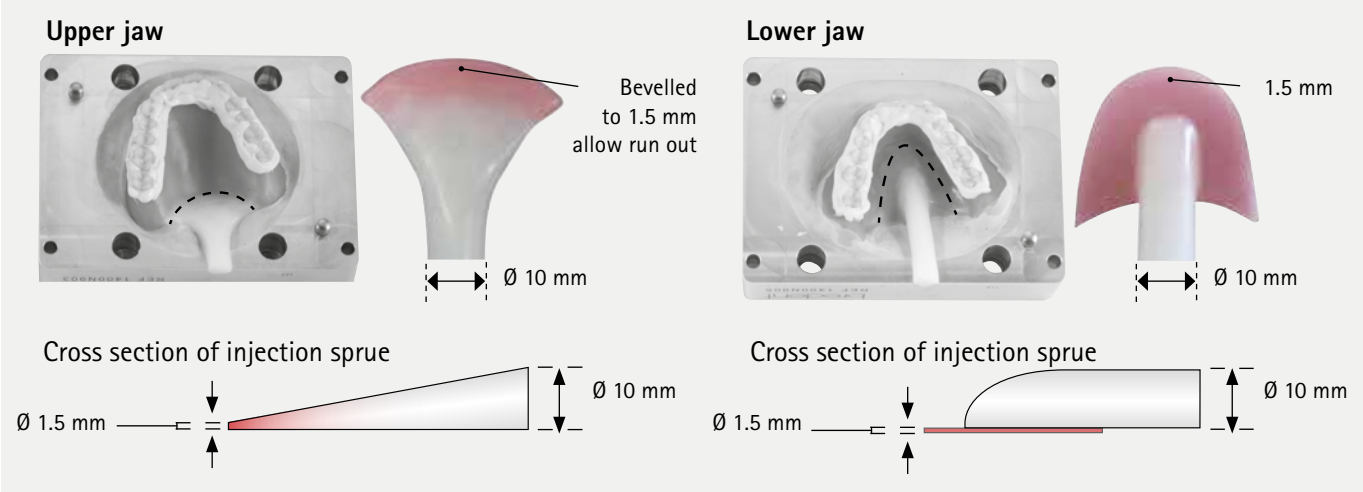


After the duplicate model has been embedded in the lower half of the flask, the excess investment plaster is cleanly removed from the flask so that no plaster residue prevents the closure of the two halves of the flask. There should also be no undercut areas so that the counterpart can subsequently be easily loosened and removed from the bottom half of the flask.

Step 4:
Spruing the model

The sprue channel for the filling with molten Bio Dentaplast 2 is attached using a 10-mm thick special wax profile. The film sprue technique should be used here. This means that the entire lingual area of the lower jaw is sealed with a 1.5 mm thick pink wax plate. For an upper jaw with closed modelling of the palate, the 10 mm wax channel can be applied in the area of the palatal vibrating line. This ensures that the liquid Bio Dentaplast 2 can be injected into the framework geometry during the injection process with the same distance and injection pressure from the centre of the flask, thus ensuring an even distribution.

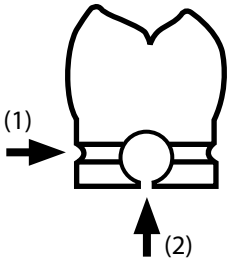
Film sprue of a UK telescope injection-moulded base.



The distribution of the injection pressure over a large area of the teeth by the film sprue prevents deformations in prefabricated denture teeth as well as a displacement of tooth positions.

Step 5:
Preparation when using prefabricated teeth

When using prefabricated denture teeth, special attention must be paid to their bonding with Bio Dentaplast 2 or to the pink denture resin (powder-liquid systems). To ensure a secure bond between the denture tooth and denture base, the contact surfaces of all the prefabricated teeth have to be sandblasted with 110 µm aluminium oxide. A circumferential groove (1) in the neck of the tooth and an undercut mechanical retention (2) are milled in.



Optimal contour for the mechanical retention areas cut using the "Diamond grinding tool for veneering techniques" (REF 34000830).

Option 1

If the prefabricated teeth are invested together in the flask, the Bio Dentaplast 2 is injected at the bonding surface. The teeth must therefore be machined circularly and apically with a special rotating instrument, the "Diamond grinding tool for veneering techniques" (REF 34000830). In addition, the teeth's bonding surfaces must be roughened before the injection process to enlarge the surface for the poly.link IC bonding agent.

When using Dentasil tooth protection silicone, make sure that the silicone is not applied to occlusal areas or the incisal edges of the anterior teeth.

When using prefabricated teeth, create mechanical retentions.

Option 2

Fabricating the teeth from tooth-coloured Bio Dentaplast 2 is also possible.

Example of the design of fully anatomical Bio Dentaplast 2 secondary telescopes. Prefabricated teeth are positioned in the toothless quadrant and finished with uni.lign denture acrylic.

Thanks to the total of 10 Bio Dentaplast 2 tooth shades available, the teeth can also be made from Bio Dentaplast 2 through an injection process.

In addition, retention areas for denture acrylic and modelled fully anatomical teeth can be shaped and injection moulded in Bio Dentaplast 2.

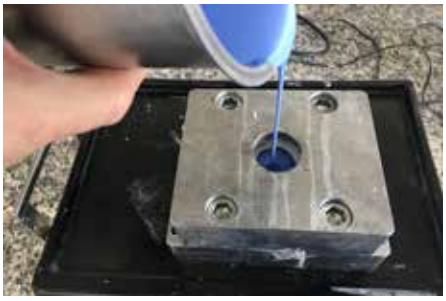
Example of modelled teeth transferred to Bio Dentaplast 2. The hole retentions were also made from Bio Dentaplast 2.

Step 6:
Preparation and investment of the flask halves for the injection process

After the wax modelling and the film sprue steps have been completed, the two flask halves are closed and firmly screwed together. To ensure that the two flask halves can be opened and separated from each other without any damage for the wax model boiling out phase, the plaster surfaces must be insulated from one other with Acrylic Sep.

For the initial insulation with Acrylic Sep, this layer of insulation should only be applied thinly. If it is applied too thickly, thin layers of dry separating liquid may form if application is repeated and flake off from the plaster. This creates the risk of imperfections in the injection-moulded objects.

To make it easier to separate the two halves of the flask, a thin layer of Acrylic Sep special separating liquid must be applied to the plaster components to wet them.



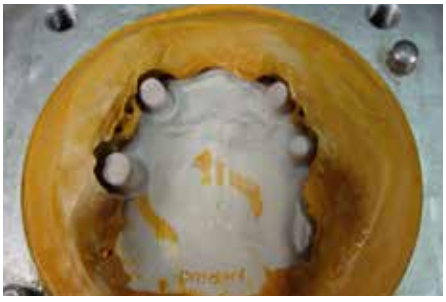
Flask filled with Exakto Rock S or Fluid-Rock and firmly screwed closed. After approximately 40 minutes, the flask halves can be opened and the wax boiled out.

Once the insulating layer has dried, the flask can be closed and tightened firmly with the 4 socket head screws. Please make sure that the screws are not screwed too tightly, otherwise it will not be easy to loosen them again after the pressing process. The mixed plaster is poured in through the circular opening on the upper part of the flask to ensure there are no bubbles.

After the super-hard stone has been allowed to set for 40 minutes, the 4 screws on the flask can be loosened and removed. The flask halves are then levered apart using a plaster knife at the recesses provided in the corners. Heating the flask in a warm water bath for a short period has been shown to make separating the flask easier. The two halves of the flask can then be opened more easily as the wax has softened.

As soon as the flask halves have been separated, the excess wax can be boiled out with boiling water and removed without residue. A special boil out unit can also be used for this.

Care should be taken to ensure that areas of the wax model that are hard to reach are completely removed from the wax, otherwise there is a risk of defects in these areas after pressing.



After the wax model has been boiled out, the plaster and wax residues can be removed with a soft toothbrush and washing-up liquid. Insulate the model with Acrylic Sep directly when it is still warm from the boiling water.

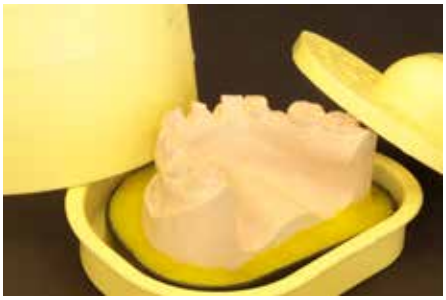
To avoid condensation forming inside the closed flask the flasks should only be closed in the thermopress device **1 minute** before the injection process. This extends the drying and flash-off time for the plaster and the insulation.

3. beauty&bite splinting technique

Preparation of master model, fabrication of working model, design of the wax modelling in splinting technique, beauty&bite finishing

Step 1:
First the impression is cast and the master model fabricated with Exakto-Form A+B. Mixing ratio 1:1.

Step 2:
If necessary, block-out the master model. Then create the duplicate with Exaktosil N21. Cast the duplicating mould with class IV super hard stone (Exakto-Rock S).



Use retentions, only block-out the clasp teeth in extreme cases. Duplication: 2 x 100 g components A+B Exaktosil N21.

Loosen the duplicate with Technolit.

Cast with Exakto-Rock S - plaster/water mixing ratio: 100 g: 20 ml. Setting time: approx. 40 minutes

To make the devestment of Bio Dentaplast 2 easier, the model can also be made out of Expando-Rock with distilled water. A hardening time of 6 hours must be observed.

Step 3:
After removing the model from the duplicating mould, the beauty&bite splint is modelled.

There are different ways of manufacturing the splint. Gnathological modelling of the teeth moulds is done using standard waxes or by applying novo.lign shells. Rational modelling in the area of the posterior teeth can be done using Gnathoflex silicone moulds.

It is important that the model is not designed to be smaller than 0.8 mm and that all materials are waxed on well so that no investment material can flow underneath.

Modelling with standard wax, Gnathoflex for the posterior quadrants or in the front with the novo. lign shells. Do not model below 0.8 mm, wax everything on well so that no investment plaster can run underneath.

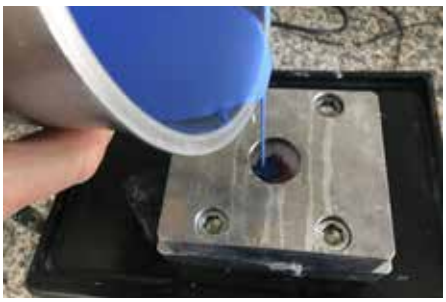
Step 4:
Investment in the flask and waxing in of the sprues using the film sprue technique

The procedure for creating the film sprue is explained in section 4 of the process instruction "Spruing the model". Film sprue consisting of 1.5 mm wax plate and Ø 10 mm injection channel.

Brush the inside of the flask with Vaseline, invest with Exakto-Rock S / class IV plaster - plaster-water mixing ratio: 250 g: 53 ml.

Step 5:
Close the flask, fill with plaster.

After insulating the inside of the flask, the two halves of the flask are screwed together and covered with plaster.



Plaster-water mixing ratio: 300 g: 90 ml.

Step 6:
Open the flask, remove the wax residues, insulate with Acrylic Sep.

After the Exakto-Rock super-hard stone's setting time of 40 minutes, the 4 screws on the flask can be loosened and removed. Heating both halves of the flask in a hot water bath for a 10 minutes has been shown to make separating the flask easier.
Insulate the still-warm plaster with Acrylic Sep or UV die varnish.
When the insulating layer has completely dried, the flask can be closed. To avoid condensation forming inside the closed flask, the flask halves should only be closed in the thermopress device shortly before the injection process. This extends the drying and flash-off time for the plaster and the insulation.

Place in hot water for 10 minutes, the remove the wax from the surface. Soap with clean boiled water has proved to be the best way to do this. Insulate the hot flask 2 x with Acrylic Sep or UV transparent die varnish.

Step 7:
See the "Pressing process with thermopress 400" process instructions for the pressing process.

The injection process is carried out in the thermopress 400 using the parameters recommended for Bio Dentaplast 2. A more detailed description can be found on page 22 of these processing instructions under "Pressing process with the thermopress 400".

Wet the aluminium cartridges with thermal paste. Place the cartridge in the desired chamber.
Select the Bio Dentaplast 2 program.
Start the heating time.

Use the Bio Dentaplast 2 processing parameters.

Embedding technique	Material	Target temp. In °C	Heating time in min.	Pressure time in sec.	Speed	Force	Flask temp. in °C	Program number on the thermopress 400 version 2.62
Flask	Bio Denta-plast 2	270 °C	15 min.	120 sec.	8	80	40 °C	10
Muffle	Bio Denta-plast 2	270 °C	15 min.	120 sec.	8	80	40 °C	10

Step 8:
Separation of the injection channel, finishing and polishing.

After the flask has cooled and the screws have been removed, the two halves of the flask can be separated by carefully hitting the flask with a hammer. Remove any plaster residues and disconnect the injection moulding channel.
Bio Dentaplast 2 is very easy to finish using the specially designed bur set (REF 33000830).
Finish the injection-moulded beauty&bite splint using Generation M cross-toothed burs, Ceragum, Abraso Gum Acryl and Abraso-Fix. Pre-polishing is done with Acrypol polishing paste and a goat hair brush. The beauty&bite is polished to a high gloss with Abraso Star Glaze and cotton buffs.




Devest with hammer or compressed air chisel. Cut out with diamond-coated G-Flex. Finishing with Generation M cross-toothed burs and Multidrill.

Rubberised with Ceragum coarse/medium or Abraso-Gum Acryl. Pre-polished with Abraso-Fix and Acrypol with goat hair brush. High-gloss polish with Abraso Star Glaze.

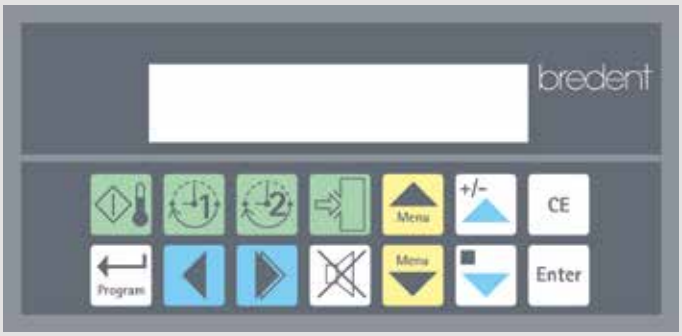
Pressing process with the thermopress 400

Now the entire flask is perfectly prepared for the subsequent injection process with the thermopress 400 injection moulding unit. Simply select the appropriate program for Bio Dentaplast 2 on the unit and carry out the preheating and injection process. The precise operation of the thermopress 400 unit is described in detail in the operation and maintenance instructions (REF 0009183EX).

The aluminium cartridge should be insulated with thermal paste before being inserted into the thermopress 400 unit. This is the only way to ensure a long service life for the heating chamber.

Clean the heating chamber before each pressing operation using the thermopress cleaning brush

(01) Mains switch with integrated microfuse
(02) Display (start menu) - (operating level)
(03) Start heating
(04) Previous program
(05) Start heating time 1
(06) Piston back
(07) Start heating time 2
(08) Piston forward
(09) Start injecting
(10) Buzzer off
(11) Menu key
(12) Menu key
(13) Input key
(14) Input key
(15) CE key
(16) ENTER key
(17) Heating cylinder lever
(18) Clamping screw 1
(19) Clamping screw 2
(20) Bracket
(21) Contact switch
(22) Flask chamber
(23) Heating cylinder
(24) Flask chamber lid (protective lid!)



(02) Display

thermopress 400 injection moulding unit controls.

If the processing parameters have not already been stored in the unit, they can be stored manually under a new program number. The current parameters can be found on the Bio Dentaplast 2 outer packaging.

– Default settings –
valid from version 2.57

thermopress 400 unit	flask
Program No. 5	
Set temperature	Heating time
270° C	15 min
Force level (power)	Injection speed
80	8
units working with compressed air / gas	
Force level	7.5 bar

The processing parameters for all thermoplastics are listed on the outer packaging. Here the parameters for Bio Dentaplast 2 are shown.

As soon as the buzzer signals the end of the injection process, the flask can be removed from the bracket and removed from the device using the release function. The flask is then placed in a container with cold water for cooling. When the flask has cooled to room temperature, the flask can be opened by loosening the 4 socket head screws and a hammer.

Only when the two fastening screws on the flask holder have been loosened and folded up can the cartridge be expelled from of the device.

After the injection process, the flask is cooled to room temperature in a cold water bath.

Removing the excess plaster from injection-moulded Bio Dentaplast 2 objects using a deflasking chisel has proven to be successful.

To avoid damaging the injection-moulded objected, the devesting process should be carried out with a pneumatic deflasking chisel.

After the devestment process, the rest of the cartridge together with the injection sprue can be disconnected from the injection-moulded object.

Finishing with resins

Option 1 (with cold-curing resin):

The injection-moulded frameworks can be finished with conventional denture acrylic (e.g., uni.lign) in exactly the same way as model casting bases made of cobalt-chrome dental casting alloys. However, when choosing this option, ensure that the uni.lign has a considerably higher residual monomer content than a comparable thermoplastic. This material should not be used for finishing if the patients has a known allergic reaction to PMMA.

Option 2 (with thermoplastic, Polyan IC):

A second option is to finish the moulded base with a thermoplastic material, e.g, the gum-coloured Polyan IC. With this 2nd option, the teeth set in wax are again, as already described in these instructions, invested in the flask and transferred to Polyan IC in a second injection moulding process. For this purpose, the saddles are shaped with wax to the shape they will subsequently be in their finished state. Mechanical retentions are likewise milled into the teeth beforehand and the teeth are positioned correctly in occlusion. The injection channels are also affixed to the alveolar ridge in this second injection, as described above.

Polishing

First, the structure is evenly smoothed on the handpiece with 280 grain sandpaper and then with 400 + 600 grain sandpaper in a second step. The structure is then pre-polished using pumice stone powder and a goat hair brush (REF 35000610) or Abraso-Soft Acryl (REF 35000800) on the polishing lathe with no pressure. The high gloss polishing is completed with the handpiece using a cotton buff (REF 35000650) and Abraso Star Glaze high gloss polishing paste (REF 52000163).

Relining (rebasing):

After creating the model with Exakto-Rock S for relining with Bio Dentaplast 2 or Polyan IC, the model and prosthesis are directly invested in the lower part of the flask. As soon as the class IV super hard stone has hardened, a silicone coating is applied to the acrylic teeth. The plaster against plaster insulating liquid Master Sep is then applied. The upper part of the flask is then screwed and the plaster counterpart fabricated.

The dentures can be removed once the flask has been opened. All the plastic parts are placed at a reasonable distance apart so that only the basing arch remains connected.

To avoid visible transitions from the new denture material to the old material, the interdental spaces should also be reduced with a bur.

Finished rebased dentures rebased with Bio Dentaplast 2 PC20 or Polyan IC. The injection channel and the excess acrylic components are now removed with a bur. This is followed by high-gloss polishing.

No colour transitions are visible after the high gloss polishing.

Cleaning

With heated cleaning devices (ultrasound), care must be taken to ensure that the temperature of the cleaning liquid does not exceed 50 °C. Do not use cleaning agents containing alcohol or acid.

Application examples:

beauty&bite splinting technique
Telescopic model injection-moulding base
Clasp injection-type base

Ordering information

Bio Dentaplast 2

Item name	REF	PU
Bio Dentaplast 2 A1	52BA1020 52BA1028	2 x 20 g 2 x 28 g
Bio Dentaplast 2 A2	52BA2020 52BA2028	2 x 20 g 2 x 28 g
Bio Dentaplast 2 A3	52BA3016 52BA3020 52BA3028	2 x 16 g 2 x 20 g 2 x 28 g
Bio Dentaplast 2 A3.5	52BA3520 52BA3528	2 x 20 g 2 x 28 g
Bio Dentaplast 2 A4	52BA4020 52BA4028	2 x 20 g 2 x 28 g

Item name	REF	PU
Bio Dentaplast 2 PC 20	52BP2020 52BP2028	2 x 20 g 2 x 28 g
Bio Dentaplast 2 TP	52BTP016 52BTP020	2 x 16 g 2 x 20 g

Recommended tools and materials

Bur set Thermoplastic materials

1 set 12 pieces	REF 33000830

Carbide bur M 8 Generation

Shape	Length mm	REF
Granade	6.5	H272M814
Pear	6.0	H237M823
Conical round	12.8	H200M823
Bud round	8.2	H263M840
Conical round	13.7	H194M840
Granade	8.1	H274M840

Exakto-Rock S Super-hard stone for scan models, brown, class 4

10 x 2 kg	REF 5700SB50

Fluid-Rock Blue base plaster

10 x 2 kg	REF 5700FB50

Acrylic Sep Acrylic-plaster separating liquid

750 ml	REF 52000294

Plaster insulating liquid

750 ml	REF 54000135

thermopress sprue wax

Ø 10 mm 275 g	REF 43007410

poly.link IC Bonding agent for acrylic teeth

50 ml	REF polylnk5

visio.link PMMA & composite primer

10 ml	REF VLPMMA10

Die varnish light-curing, transparent

20 ml	REF 54001006

thermopress flask hook and 10 mm Allen key

1 set 2 pieces	REF 14000912

thermopress cleaning brush

1 pieces	REF 11000402

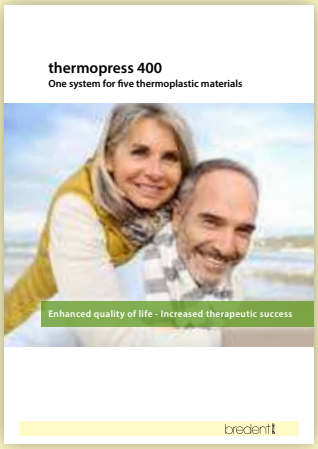
thermopress troubleshooting

Description of the error/question	Possible causes, elimination
The options menu is not shown on the display when the mains switch is pressed.	1. Check the mains fuses. 2. Check that the cables are connected to the unit correctly. 3. Mains voltage is not as specified on the type plate. 4. There is no power coming from the socket. 5. Change the unit's fuse/10 [A] microfuse, see 3.2 Caution.
The thermopress unit has been correctly installed. After a short time, the injection performance decreases. Objects are not filled completely.	1. The heating chamber or the front side of the pressure piston is dirty. 2. Too little or no thermal paste (lubricant) has been used for the aluminium cartridges (increased cartridge friction). 3. Check program settings. if necessary, correct them once the parameters for injection moulding have been entered.
The unit fails to reach the desired temperature, or does so extremely slowly. The material does not melt!	1. Check the mains voltage against the unit's technical data of the unit. 2. One or more heating elements may be defective. 3. The temperature probe is not showing the correct value - use the digital thermometer and temperature sensor to calibrate it (optional accessories: REF 99300364 and REF 99300366). 4. Important: Annual checking of the target/actual temperature ensures flawless injection moulding results. 5. Incorrect parameters have been entered for the thermoplastic material. Please check the parameters and, where necessary, adjust the program to the material.
The injection process cannot be started. No further error messages are displayed.	1. Check the position of the heating cylinder and its filling against the display. 2. The heating cylinder was not moved to the final position during fixing of the flask (displaced). 3. Use the selection lever to move the heating cylinder to the desired final position (1 or 2) up to the limit stop. 4. Check that the flask chamber lid (protective lid) is correctly closed. 5. Check that the right rear contact switch is functioning correctly.
What should I do if the piston becomes wedged in the forward position?	1. Please call the bredent Customer Service Team. Germany. Tel. +49 7309 872-22.
The display shows incomprehensible messages.	1. Unit is not sufficiently ventilated. Please check that the unit is set up in an adequately ventilated area and, if necessary, adapt the area accordingly. The unit's ventilation slits must be kept free at all times in order to prevent the unit interior from overheating. See also 3.2 Positioning/functioning of the unit. 2. Switch the unit off and wait for approx. 2 minutes until you hear a quiet "click" (there is a delay before the frequency converter switches off), then restart the unit.
Motor temperature too high! Please wait! **Housing temperature too high! Please wait!**	1. The thermal protection switch has been activated and is preventing operation. Ensure that the unit is in a sufficiently ventilated area. 2. Abort the program using the CE key and allow the injection moulding unit to cool down while switched off (ventilation mode).
There are large quantities of aluminium residue in the heating cylinder.	1. Too little or no thermal paste has been applied to the aluminium cartridge. 2. Increased abrasion of the aluminium cartridges; the residue is deposited on the inside wall of the heating cylinder (narrowing/diameter has been reduced). 3. If necessary, have the heating block replaced.
The display shows "Cooling down".	1. The target temperature currently programmed for the insertion of the filled aluminium cartridges is below that of the heating cylinder (injection moulding of different materials) 2. Wait until the unit cools down and the temperature is reached.

Bio Dentaplast 2

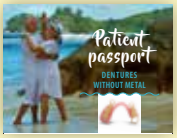
Processing instructions

Other offers that may be of interest to you



Brochure
REF 000626GB

Patient brochure
REF 000415GB



Patient passport
REF 000628GB

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