PRODUCTS 2021



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SOOD INSPIRING WITH KETTENBACH DENTAL



CAN IT BE DONE SMARTER?

Our researchers and developers at Kettenbach Dental will not rest until the outcome is as perfect as your aspiration.

This has been driving us for over 75 years to produce exceptional innovations such as Panasil[®], Identium[®], Futar[®], and Visalys[®].

We want to simplify your life with product innovations "Made in Germany" – it's as easy as that!

Kettenbach Dental

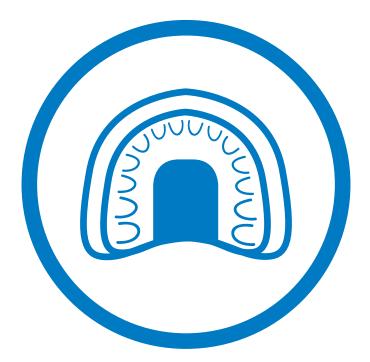


WE HAVE BEEN THINKING ABOUT PROGRESS FOR MORE THAN 75 YEARS. WITH EVERY SINGLE ONE OF OUR INNOVATIONS.

2019	Introduction of Visalys [®] CemCore, the 2-in-1 composite: the dual-curing, adhesive material can be used for both cementation and core build-up, providing an optimized adhesive bond while also having outstanding stability.
2016	Introduction of Futar [®] Cut & Trim Fast, the latest bite registration material from the successful Futar [®] family that ensures even more efficient workflows in your practice.
2015	Introduction of Visalys [®] Core, the first core build-up material with the unique Active-Connect-Technology for a reliable adhesive bond with single-step and multi-step adhesives.
2012	Introduction of Visalys [®] Temp which sets the new benchmark for materials for temporary crowns and bridges.
2009	Introduction of Identium [®] . A new impression material that revolutionizes the one-step impression technique: Vinylsiloxanether [®] .
2008	Introduction of Silginat®, a new addition-curing silicone specifically for alginate indications.
2006	Introduction of Panasil [®] initial contact, the first A-silicone with very high hydrophilicity.
2002	Introduction of Panasil [®] binetics Putty.
1998	Launch of Mucopren [®] Soft, a permanently soft relining material.
1994	Introduction of a new bite registration material based on silicone that subsequently achieves a high market position worldwide: Futar®.
1982	Market launch of Panasil [®] , a new class of impression material based on addition-curing silicones.
1955	Introduction of Lastic® 55, the first impression silicone in the world.
1944	Founding of Kettenbach Dental by August Kettenbach in Wissenbach on 2 May.

IMPRESSION MATERIALS

SILGINAT®	Page 11	PANASIL [®]	Page 19
IDENTIUM ®	Page 13	FUTAR [®]	Page 29



SOODEFFICIENT Is SILGINAT®



SILGINAT[®] SILGINAT[®] STRAWBERRY



Silginat[®] is a medium-viscosity, elastomeric A-silicone available in a large 5:1 cartridge and was specifically developed for alginate applications (such as anatomical impressions).

Stable in long-term storage and suitable for multiple pouring

 Multiple impressions created for a situation is no longer necessary

High precision thanks to the advantages of an A-silicone

- O Alginate-like consistency and low breaking strength
- O The material is thixotropic but still flows
- O It is dimensionally stable with high resilience
- O Scannable

Standardized, hygienic processes

 Clean, simple, and safe application with the 5:1 jumbo cartridge for reproducible results in terms of a quality management system.

Modern setting characteristics

- Short intraoral setting time (90 seconds) for rapid workflows.
- The anatomical impression is prepared in just 3 minutes.
- O Shore hardness A 45 for easy releasing.



Silginat® I Silginat® Strawberry medium viscosity

- Anatomical impressions
- Preparing temporary crowns and bridges
- Opposing jaw impressions
- Orthodontic tasks
- Models for case studies
- Preparation of models for constructing splints
- Construction of simple removable prosthetic restorations

Highly recommended

Recommended





·····	18	
Dynamic mixers	p. 51	I
Sympress dispenser	p. 53	3

Silginat®	760 mL Refill pack 5:1	300 mL Normal pack 1:1 → 6 x 50 mL cartridges, 6 mixing tips	1200 mL Bulk pack 1:1
Silginat®	REF 14713	REF 13846	REF 13847
Silginat [®] Strawberry	REF 14715	REF 13826	REF 13827

SOOCOMFORTABLE IS IDENTIUM®



IDENTIUM®

Identium[®] combines the benefits of two established impression materials (A-silicone and polyether) working in perfect harmony. The innovative material class Vinylsiloxanether[®] is available in high,

medium, and low viscosity with normal and fast setting variants for monophase and double-mix impressions. This enables all essential impression techniques to be covered with a single material.

Double-mix impressions

Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page	
Identium® Heavy	A	2:00 min.	_	2:30 min.	4:30 min.	15	
Identium [®] Heavy Fast	E	1:15 min.	_	2:15 min.	3:30 min.	15	
Identium [®] Medium	E	2:00 min.	1:20 min.	2:30 min.	4:30 min.	14	
Identium [®] Medium Fast	E	1:15 min.	0:40 min.	2:15 min.	3:30 min.	14	
Correction material (Light body)							
Identium [®] Light	7	2:00 min.	1:20 min.	2:30 min.	4:30 min.	16	
Identium [®] Light Fast	*	1:15 min.	0:40 min.	2:15 min.	3:30 min.	16	

* Total setting time (removal from the mouth) from the start of the mixing.

Monophase, fixation and pick-up impressions

Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Identium [®] Medium	A	2:00 min.	1:20 min.	2:30 min.	4:30 min.	14
Identium [®] Medium Fast	E	1:15 min.	0:40 min.	2:15 min.	3:30 min.	14

* Total setting time (removal from the mouth) from the start of the mixing.

Functional impressions

Tray material	Mixing	Working time at		Intraoral	Total	Page
		23 °C	working time	setting time	setting time*	å
Identium® Medium	Ð	2:00 min.	1:20 min.	2:30 min.	4:30 min.	14

* Total setting time (removal from the mouth) from the start of the mixing.

IDENTIUM® MEDIUM

Identium® Medium is a medium-viscosity precision impression material made of Vinylsiloxanether® for monophase impressions. Thanks to its high final hardness it is particularly well suited to implant impressions.

1

Greatest precision

- Perfect flow even with residual moisture enables the preparation margins to be reliably determined.
- The short intraoral setting time means there is less chance of deformation during the setting phase.

Secure retention

 The high final hardness (Shore A 60) ensures precise reproduction and secure retention of the implant posts and primary crowns.

More comfortable for user and patient

- O Easy removal from the mouth thanks to high elasticity
- O Low risk of breakage in model fabrication
- O Neutral taste and smell
- O Short intraoral setting time
- O Considerably reduced gag reflex and movement

Time saving

 After just a total of 3 minutes and 30 seconds, the impression can be removed from the patient's mouth (Identium[®] Medium Fast).



Medium Fast

Identium® Medium medium viscosity

- On the second second
- Fixation impressions
- Functional impressions
- Pick-up impressions
- Double-mix impressions
- Reline impressions

Highly recommended

Recommended





REF 14719

IDENTIUM® HEAVY

Identium® Heavy is a high-viscosity monophase precision impression material made of Vinylsiloxanether® that delivers particularly good results in the double-mix technique thanks to the optimal pressure build-up when combined with Identium® Light.

i



Greatest precision

- Perfect flow even with residual moisture enables the preparation margins to be reliably determined.
- The short intraoral setting time means there is less chance of deformation during the setting phase.

More comfortable for user and patient

- O Easy removal from the mouth thanks to high elasticity
- O Low risk of breakage in model fabrication
- O Neutral taste and smell
- O Short intraoral setting time
- O Considerably reduced gag reflex and movement

Time saving

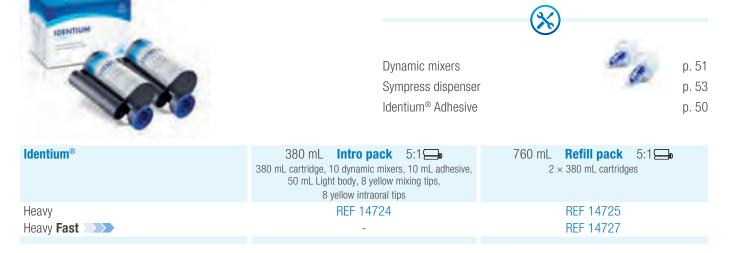
 After just a total of 3 minutes and 30 seconds, the impression can be removed from the patient's mouth (Identium[®] Heavy Fast). Identium® Heavy high viscosity

- Double-mix impressions
- Fixation impressions
- Functional impressions
- Pick-up impressions

Highly recommended

Recommended





IDENTIUM® LIGHT

Identium® Light is a low-viscosity precision impression material made of Vinylsiloxanether® that produces incredibly detailed impressions thanks to its high flowability even into the narrowest of sulci and even in extreme situations thanks to its high hydrophilicity.

i



Greatest precision

- Perfect flow even with residual moisture enables the preparation margins to be reliably determined.
- O The narrowest of sulcus gaps are also precisely recorded.
- O The short intraoral setting time means there is less chance of deformation during the setting phase.

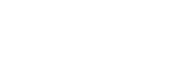
More comfortable for user and patient

- O The extra-long intraoral working time of 80 seconds (Identium[®] Light) means the material can be comfortably applied even with extensive prosthetic restorations.
- O Neutral taste and smell
- O Short intraoral setting time

Time saving

 After just a total of 3 minutes and 30 seconds, the impression can be removed from the patient's mouth (Identium[®] Light Fast).





Identium® Light low viscosity

- Double-mix impressions
- Reline impressions
- Highly recommended
- C Recommended





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Identium®	100 mL Normal pack 1:1 2 × 50 mL cartridges, 8 yellow mixing tips
Light	REF 13701
Light Fast	REF 13711

SOOO PRECISE IS PANASIL®



PANASIL®

Precise with no compromises, that's what **Panasil**[®] stands for. The range includes the right product for all impression techniques and indications. Thanks to its impressive product properties and coordinated product combinations, impressions can even be taken in moist environments and still deliver exceptionally precise results. The Panasil[®] family is available in low, medium, and high viscosity precision impression materials as well as a kneadable material all based on A-silicone.

Two-step impressions

Start 1						
Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Panasil [®] binetics Putty Fast	E	1:30 min.	_	2:30 min.	4:00 min.	21
Panasil [®] binetics Putty Soft	E	2:00 min.	_	3:00 min.	5:00 min.	21
Panasil [®] tray Fast Heavy	E	1:20 min.	_	2:00 min.	3:20 min.	23
Panasil [®] Putty Fast	(fe)	1:30 min.	_	2:00 min.	3:30 min.	22
Panasil [®] Putty Soft	()=E)	2:00 min.	_	2:00 min.	4:00 min.	22
Panasil [®] Putty	()=E)	2:00 min.	_	2:00 min.	4:00 min.	22
Correction material (X-Light body)						
Panasil [®] initial contact X-Light	R	1:30 min.	1:00 min.	2:30 min.	4:00 min.	25
Panasil [®] initial contact X-Light Fast	R	1:00 min.	0:30 min.	2:00 min.	3:00 min.	25
Panasil [®] contact plus X-Light	R	2:00 min.	1:00 min.	2:00 min.	4:00 min.	26

* Total setting time (removal from the mouth) from the start of the mixing.

Double-mix impressions

100 C						
Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Panasil [®] tray Soft Heavy	E	2:00 min.	_	2:00 min.	4:00 min.	23
Panasil® tray Soft Heavy	R	2:00 min.	_	2:00 min.	4:00 min.	23
Panasil® tray Fast Heavy	A	1:00 min.	_	2:00 min.	3:00 min.	23
Panasil® tray Soft Heavy Fast	A	1:00 min.	_	2:00 min.	3:00 min.	23
Correction material (Light body)						
Panasil [®] initial contact Light	R	1:30 min.	1:00 min.	2:30 min.	4:00 min.	25
Panasil [®] initial contact Light Fast	E	1:00 min.	0:30 min.	2:00 min.	3:00 min.	25
Panasil [®] contact two in one Light	$\overline{\mathcal{A}}$	2:00 min.	1:00 min.	2:00 min.	4:00 min.	26

* Total setting time (removal from the mouth) from the start of the mixing.

PANASIL®

Sandwich impressions

and the second second						
Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Panasil [®] binetics Putty Soft	E	2:00 min.	_	3:00 min.	5:00 min.	21
Panasil [®] Putty Soft	(je)	2:00 min.	_	2:00 min.	4:00 min.	22
Correction material (Medium body)						
Panasil [®] initial contact Regular	A	1:30 min.	1:00 min.	2:30 min.	4:00 min.	25

* Total setting time (removal from the mouth) from the start of the mixing.

Monophase, fixation and pick-up impressions

Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Panasil [®] monophase Medium		2:00 min.	1:00 min.	2:00 min.	4:00 min.	24

* Total setting time (removal from the mouth) from the start of the mixing.

Functional impressions

Tray material	Mixing	Working time at 23 °C	Intraoral working time	Intraoral setting time	Total setting time*	Page
Panasil [®] monophase Medium		2:00 min.	1:00 min.	2:00 min.	4:00 min.	24

* Total setting time (removal from the mouth) from the start of the mixing.

PANASIL® BINETICS PUTTY FAST AND PUTTY SOFT



 (\cap)

Panasil® binetics Putty is a genuinely kneadable putty based on A-silicone for precision impressions available in a 5:1 jumbo cartridge (380 mL).



Easy processing

- O Good trimming properties thanks to the appropriate hardness
- O Easy extrusion from the convenient 5:1 cartridge with all common mixing devices
- Consistent quality thanks to exact, reproducible dosage from the convenient Jumbo cartridge

Security thanks to precision

- O High viscosity for sufficient pressure build-up
- O Easy removal from the mouth based on ideal elasticity
- O Dimensionally stable elastic recovery
- O Low salivation thanks to odor and taste neutrality

Always the right product

- binetics Putty Fast short intraoral setting time (end of setting 4 min.), high final hardness (Shore A 63)
- binetics Putty Soft reduced final hardness (Shore A 56) for even easier removal from the mouth



Panasil® binetics Putty Fast short intraoral setting time

Ø

- Two-step impressions
- Foil impressions

Panasil® binetics Putty Soft reduced final hardness

- One-step putty-wash impressions
 Functional margin contouring
- Two-step impressions
- Foil impressions

Highly recommended

Recommended





Panasil®	380 mL Intro pack 5:1 380 mL cartridge, 10 dynamic mixers	760 mL Refill pack 5:1
binetics Putty Fast	REF 14700 REF 14702	REF 14701 REF 14703
,		

PANASIL® PUTTY, PUTTY FAST AND PUTTY SOFT



IMPRESSION MATERIALS

Panasil® Putty is a classic kneadable precision impression material available in a jar. Thanks to continuous refinement, you benefit from more than 35 years of experience, quality, and reliability.

Easy processing

- O Accustomed handling without additional equipment
- O Smooth kneading without sticking

Precise and cost effective

- O Hardness and elasticity in harmony for easy removal from the mouth
- O Extra high dynamic pressure for optimal flow
- O Dimensionally accurate
- O Outstanding value for money

Always the right product

- O Putty Soft reduced final hardness (Shore A 60) for even easier removal from the mouth
- O Putty Fast fast setting (end of setting 3:30 min.)
- O Putty Final hardness Shore A 66 (end of setting 4:00 min.)



Putty Fast Putty Soft Putty

REF REF Panasil® Putty Fast short intraoral setting time

Ø

- Two-step impressions
- Foil impressions

Panasil® Putty Soft reduced final hardness

- One-step putty-wash impressions
- Functional margin contouring
- Two-step impressions
- Foil impressions

Panasil[®] Putty high dynamic pressure

- Two-step impressions
- Foil impressions
- One-step putty-wash impressions
- Functional margin contouring
- Highly recommended
- Recommended



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ro pack 1:1 _ catalyst paste, Iste, 2 dispensing scoops	900 mL Normal pack 1:1 1 × 450 mL catalyst paste, 1 × 450 mL base paste, 2 dispensing scoops	3600 mL Economy pack 1:1 4 × 450 mL catalyst paste, 4 × 450 mL base paste, 2 dispensing scoops
F 11140	REF 11141	REF 11143
F 11120	REF 11121	REF 11123
_	REF 11101	REF 11103

Panasil[®] light body materials

Panasil[®] Adhesive

PANASIL[®] TRAY FAST HEAVY AND SOFT HEAVY



 (\cap)

Panasil® tray is a high-viscosity, stiff Heavy body based on A-silicone for precision impressions available in the 5:1 jumbo cartridge.

i



Easy processing

 Consistent quality thanks to exact, reproducible dosage from the convenient Jumbo cartridge

Security thanks to precision

- O High dynamic pressure
- O Dimensionally stable elastic recovery
- Good trimming properties of the tray Fast Heavy material, so it is also suitable for two-step impressions

Always the right product

- tray Fast Heavy short intraoral setting time (end of setting 3:20 min.), high final hardness (Shore A 62)
- tray Soft Heavy reduced final hardness (Shore A 55) for even easier removal from the mouth





Panasil® tray Fast Heavy short intraoral setting time

Double-mix impressions
Functional impressions

Two-step impressions
 Double-mix impressions

Highly recommended

Recommended





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Dynamic mixers	0	p. 51
Sympress dispenser		p. 53
Panasil [®] Adhesive		p. 50

Panasil®	380 mL Intro pack 5:1 🕞 380 mL cartridges, 10 dynamic mixers	760 mL Refill pack 5:1 2 × 380 mL cartridges	100 mL Normal pack 1:1 2 x 50 mL cartridges, 6 green mixing tips
tray Fast Heavy	REF 14704	REF 14705	REF 13551
tray Soft Heavy 💶	REF 14706	REF 14707	REF 13541
tray Soft Heavy Fast >>>>	-	-	REF 13561

PANASIL[®] MONOPHASE MEDIUM



Panasil® monophase Medium is a medium-viscosity monophase impression material based on A-silicone. It is available in the comfortable 5:1 jumbo cartridge (380 mL) as well as the familiar 50 mL cartridge and is characterized by a particularly high initial hydrophilicity for precision in extreme situations.

i

Precise impressions

- Strong thixotropy combined with exceptional hydrophilicity enables first-class application.
- Optimal flow, which also ensures reliability and precision in difficult oral situations.

Rapidly fixed, reliably transferred

- High final hardness (Shore A 60) allows optimal retention and thus perfect and precise reproduction of primary parts.
- Practical processing and setting time (each 2:00 min.) guarantees you reliability.

Universally applicable

 Just as suitable for preparing crowns/bridges, inlays/onlays, and veneers as for fixation impressions.

Patient-friendly

• The odorless and tasteless material with a short intraoral setting time contributes to lower patient stress.





REF 14709

Panasil® monophase Medium medium viscosity

- Monophase impressions
- Fixation impressions
- Functional impressions
- Pick-up impressions
- Double-mix impressions
- Reline impressions

Highly recommended

Recommended





100 mL **Normal pack** 1:1

REF 13501

PANASIL® INITIAL CONTACT X-LIGHT, LIGHT AND REGULAR



Panasil® initial contact is a Light body based on A silicone with a particularly high initial hydrophilicity for precision impressions — it is ideally matched to the Panasil® tray materials. The three material variants (X-Light - very low viscosity, Light - low viscosity and Regular - medium viscosity) are each available as fast-setting Fast variants — simply always the right product.

i



Precision

- Optimal flow based on exceptional initial hydrophilicity ensures reliability and precision even in difficult oral situations, e.g. problematic hemostasis.
- O Dimensionally stable elastic recovery

Convenient and simple processing and working

- Fast and easy to apply using all conventional dispensing guns such as Applyfix[®] 4 for impression materials
- Outstanding flowability and highly toxicotropic: flows into narrow gaps and does not drip from the tooth



Panasil® initial contact X-Light very low viscosity, purple

- Two-step impressions
- Reline impressions
- Double-mix impressions
- One-step putty-wash impressions

Panasil® initial contact Light low viscosity, light green

- Double-mix impressions
- Reline impressions
- Foil impressions
- Two-step impressions
- One-step putty-wash impressions

Panasil® initial contact Regular medium viscosity, gray

- One-step putty-wash impressions
- Foil impressions
- Double-mix impressions
- Reline impressions

Highly recommended

Recommended

Mixing tips, yellow, 100 tips Mixing tips, green, 100 tips Panasil[®] tray materials Applyfix[®] 4 dispensing gun

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Panasil®	100 mL Normal pack 1:1 2 × 50 mL cartridges, 8 yellow mixing tips (Regular: 6 green mixing tips)	500 mL Bonus pack 1:1 ■ 10 × 50 mL cartridges, 40 yellow mixing tips
initial contact X-Light	REF 13401	REF 28300
initial contact X-Light Fast	REF 13461	_
initial contact Light	REF 13411	REF 28310
initial contact Light Fast	REF 13471	_
initial contact Regular	REF 13431	_

PANASIL® CONTACT PLUS X-LIGHT, TWO IN ONE LIGHT





Panasil® contact is a Light body based on A silicone for precision impressions. The setting characteristics of both products are impressive: end of setting can be achieved after only 2 minutes.



Flexible setting characteristics

- O Flexible working time up to 2 minutes
- O Always the same short intraoral setting time of 2 minutes
- O < 2 min. working time + 2 min. intraoral setting time
 - > 2 min. end of setting

Convenient and simple working

- Fast and easy to apply using all conventional dispensing guns such as Applyfix[®] 4 for impression materials
- O Low viscosity and stable at the same time
- O Dimensionally stable elastic recovery

Panasil® contact plus X-Light very low viscosity, purple

Ö

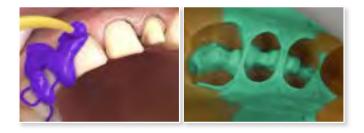
- Two-step impressions
- Reline impressions
- Double-mix impressions
- One-step putty-wash impressions

Panasil® contact two in one Light low viscosity, light green

- Double-mix impressions
- One-step putty-wash impressions
- Foil impressions
- Reline impressions

Highly recommended

Recommended





Mixing tips, yellow, 100 tips Mixing tips, green, 100 tips Panasil® tray materials Applyfix® 4 dispensing gun p. 51 p. 51 p. 21-23 p. 52

Panasil®	100 mL Normal pack 1:1 2 × 50 mL cartridges, 8 yellow mixing tips	100 mL Normal pack 1:1 2 × 50 mL cartridges, 6 green mixing tips
contact plus X-Light	REF 11892	_
contact two in one Light	-	REF 11781

SOOD SUPER WITH FUTAR®



FUTAR[®]

Dental arch

The **Futar**[®] family of products includes six syringeable elastomeric materials for bite registration to create precise impressions of the occlusal situation.

All the materials are A-silicones and are impressive thanks to their high final hardness and high level of comfort. The Futar® family has a bite registration material suitable for every requirement.

Bite registration material	Mixing	Working time at 23 °C	Intraoral setting time	Total setting time*	Special feature	Page
Futar®		0:30 min.	1:30 min.	2:00 min.	Hard material	30
Futar [®] D		0:30 min.	1:30 min.	2:00 min.	Especially hard material	31
Futar [®] D Slow		1:30 min.	3:00 min.	4:30 min.	Especially hard material with a long processing time	33

* Total setting time (removal from the mouth) from the start of the mixing.

Segment

Bite registration material	Mixing	Working time at 23 °C	Intraoral setting time	Total setting time*	Special feature	Page
Futar [®] Fast	$\overline{\mathcal{A}}$	0:15 min.	0:45 min.	1:00 min.	Hard material, rapid setting	30
Futar [®] D Fast		0:15 min.	0:45 min.	1:00 min.	Especially hard material, rapid setting	31
Futar [®] Cut & Trim Fast	7	0:15 min.	0:45 min.	1:00 min.	Especially hard, flexible processing, scannable	32

* Total setting time (removal from the mouth) from the start of the mixing.

FUTAR[®] FUTAR® FAST



Futar® is a syringeable elastomeric A-silicone for bite registration with high final hardness.

i

Precision

O The high final hardness (Shore A 90) minimizes compression when mounting the models in the laboratory.

Easy to work with

O Easy to handle and easy to process with a scalpel

Stable

O Highly thixotropic so it does not flow away into the interdental spaces but remains stable on the tooth, easy to remove from the mouth

Modern setting characteristics

- O Regular set: comfortable processing time (30 seconds), short intraoral setting time (90 seconds) for ease of use
- O Fast set: short processing time (15 seconds), extra short intraoral setting time (45 seconds): the registration is ready in just one minute

Futar[®] 30-second processing time

- Bite registration (full dental arch)
- Loading the bite fork
- Registration (general)
- Registration in orthodontics
- Bite registration (segment)

Futar[®] Fast 15-second processing time

- Bite registration (segment)
- Loading the bite fork
- Registration (general)
- Registration in orthodontics
- Bite registration (full dental arch)

Highly recommended

Recommended







Mixing tips, green, 100 tips Applyfix[®] 4 dispensing gun

p. 51 p. 52

Futar®	100 mL Normal pack 1:1 2 × 50 mL cartridges, 6 green mixing tips	500 mL Bonus pack 1:1
Futar®	REF 11912	REF 28277
Futar® Fast	REF 11926	REF 28276

FUTAR[®] D FUTAR[®] D FAST



Futar[®] D is a syringeable elastomeric A-silicone for bite registration with high final hardness.



1

Precision

O The extra high final hardness (Shore D 43) prevents springing when aligning the models in the laboratory.

Easy to work with

O Easy to handle and easy to mill

Stable

 Highly thixotropic so it does not flow away into the interdental spaces but remains stable on the tooth, easy to remove from the mouth

Modern setting characteristics

- Regular set: comfortable processing time 30 seconds), short intraoral setting time 90 seconds) for ease of use
- Fast set: short processing time (15 seconds), extra short intraoral setting time (45 seconds): the registration is ready in just one minute

Futar[®] D 30-second processing time

- Bite registration (full dental arch)
- Loading the bite fork
- Registration (general)
- Registration in orthodontics
- Bite registration (segment)

Futar® D Fast 15-second processing time

0	Bite registration (segment)
0	Loading the bite fork
0	Registration (general)
0	Registration in orthodontics
0	Bite registration (full dental arch)

Highly recommended

Recommended







Mixing tips, green, 100 tips Applyfix[®] 4 dispensing gun -

p. 51 p. 52

Futar [®] D	100 mL Normal pack 1:1 2 × 50 mL cartridges, 6 green mixing tips	500 mL Bonus pack 1:1 10 × 50 mL cartridges, 30 green mixing tips
Futar [®] D	REF 11932	REF 28278
Futar® D Fast >>>>	REF 11961	REF 28279

FUTAR[®] CUT & TRIM FAST

Futar[®] Cut & Trim Fast is an extra hard, extra fast setting A-silicone for bite registration.

i

Precision

O The extra high final hardness (Shore D 35) prevents springing when aligning the models in the laboratory.

Flexible to work with

- Whether with a bur or a scalpel Futar[®] Cut & Trim Fast is easy and simple to work with
- O Scannable for using with CAD/CAM

FUTAR

Saves time

 15-second processing time for documenting the teeth with an extra fast setting time of 45 seconds: The bite registration is prepared in just one minute.

Less material discarded

• By using the shorter yellow mixing tips, an additional three registrations can be prepared per cartridge

Futar® Cut & Trim Fast 15-second processing time

Ø

- Bite registration (segment)
- Loading the bite fork
- Scannable bite registration
- Registration in orthodontics
- Bite registration (full dental arch)

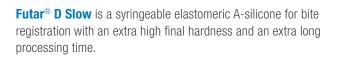
Highly recommendedRecommended





	100 mL Normal pack 1:1		500 mL Bonus pack 1:1
Fast	REF 11975	Fast	REF 28275

FUTAR[®] D SLOW





Precision

• The extra high final hardness (Shore D 43) prevents springing when aligning the models in the laboratory.

Easy to work with

O Easy to handle and easy to mill

Stable

 Highly thixotropic so it does not flow away into the interdental spaces but remains stable on the tooth

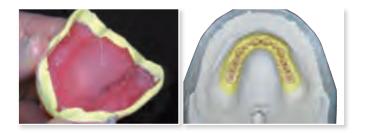
Wide range of possible uses

With a 90-second processing time, Futar[®] D Slow ensures plenty of time for myocentric bite registration, custom margin contouring, for use as an insulating agent or fixation material combined with other A-silicones in implant dentistry or anywhere where a particularly hard A-silicone is used in the clinic or laboratory Futar® D Slow 90-second processing time

- Bite registration (time consuming)
- Myocentric bite registration
- Functional margin contouring
- Bite registration (full dental arch)
- Registration (general)
- Registration in orthodontics

Highly recommended

Recommended







100 mL **Normal pack** 1:1

REF 11951

N

RESTORATION

VISALYS [®] TEMP	Page 37
VISALYS [®] CEMCORE	Page 39
VISALYS® CORE	Page 41



SOOUNBREAKABLE IS VISALYS® TEMP



VISALYS® TEMP

Visalys[®] Temp is a temporary crown and bridge material for exceptionally stable and fracture-resistant short- and longterm temporary restorations based on a multifunctional acrylic composite. Visalys[®] Temp is suitable for fabricating temporary crowns, partial crowns, bridges, inlays, onlays, and veneers.

1



Exceptionally stable and fracture resistant

- O Particularly high values for impact strength, flexural strength, diametrical tensile strength, and elastic modulus
- O Satisfied customers thanks to noticeably fewer fractures/repairs
- O Can also be used for long-term temporary restorations (> 4 weeks)

Easy to use

- O Saves valuable time: smooth surface and high luster even without polishing
- O Comfortable processing: minimal smear layer, precise milling, minimal dust

High aesthetics

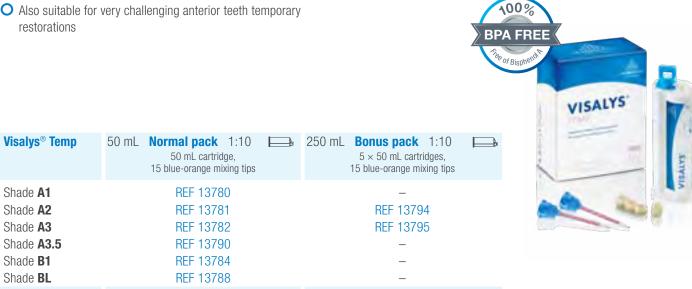
- O Tooth-like translucency and opalescence ensure optimal integration into the existing dentition thanks to the chameleon effect
- O Natural fluorescence; available in six shades
- Also suitable for very challenging anterior teeth temporary restorations

Visalys[®] Temp

- 4-week temporary restoration
- Long-term temporary restoration
- Highly recommended
- Recommended



Mixing tips, blue-orange, 50 tips p. 51 Applyfix® 6 dispensing gun p. 52



SOOO 2 IN 1 IS VISALYS® CEMCORE



VISALYS® CEMCORE

Visalys® CemCore is a dual-curing, adhesive cementation and core build-up composite. The unique Active-Connect-Technology (ACT) provides an optimized adhesive bond and at the same time Visalys® CemCore has outstanding stability thanks to the special network former, even without matrices.

i



2 in 1: 1 product, 2 indications

- For cementation of all restorations, even in the highly esthetic anterior region
- O For core build-ups, also in difficult situations

Permanently strong adhesive bond and reliable core build-up

- Despite the hydrophobicity required for a core build-up material, the unique Active-Connect-Technology (ACT) with the integrated phase-transfer catalyst ensures a permanently strong adhesive bond
- Special network formers provide Visalys[®] CemCore with high stability for core build-ups while at the same time very good flowability when positioning the restoration

Effortless work

- Visalys[®] CemCore is dual-curing, ensuring reliable curing even in sites with no light access
- Core build-ups are problem free, even without matrices
- Flows during cementation to form a thin layer under the restoration and any excess can be easily removed thanks to the fine control of the initial light curing
- Visalys[®] CemCore has a higher radiopacity than enamel and dentin and is thus easily visible
- O And of course, free of bisphenol A

Visalys® CemCore



Mixing tips, blue, blunt, 50 tips	401	p. 51
Mixing tips, blue, pointed, 50 tips		p. 51
Intraoral tips, transparent		p. 51
Endo tips, transparent		p. 51



Visalys [®] CemCore	Starter pack 2.5-mL-automix-syringe, 2 mL Tooth Primer, 2 mL Restorative Primer, blue mixing tips, blunt/tapered, 5 tips each, 3 Intraoral tips, 2 endo tips	Normal pack 5-mL-automix-syringe, blue mixing tips, blunt/ tapered, 10 tips each, 6 intraoral tips, 4 endo tips	Visalys [®] CemCore Try In Paste 1.4-mL-syringe, 5 application tips	Visalys [®] Tooth Primer
				1×4 -mL-bottle
				REF 13580
Universal (A2/A3)	REF 13570	REF 13572	REF 13592	
Opaque	_	REF 13573	REF 13593	Visalys [®] Restorative
Translucent	_	REF 13574	REF 13590	Primer
Bleach	_	REF 13575	REF 13591	1×4 -mL-bottle
Dark (A4)	_	REF 13576	REF 13594	
				REF 13581

Not available in all markets.



SOOOSTABLE IS VISALYS® CORE



VISALYS® CORE

Visalys® Core is a dual-curing, radiopaque, fluoride-containing composite for core build-up and cementing root posts with a unique Active-Connect-Technology (ACT).

1

Reliable adhesive bond for durable restorations

 The unique Active-Connect-Technology (ACT) provides a reliable adhesive bond even with light-curing single-step adhesives

Visalys[®] Core adheres exceptionally well to light-curing or dual-curing single-step or multi-step adhesives—you can still use your preferred adhesive

 Superstructures with Visalys[®] Core are strong in compression and stable and form a reliable monoblock with root post and core build-up

Success even in difficult situations

 Visalys[®] Core is dual-curing, ensuring that superstructures are solid even in sites with no light access

Two indications, one material

O For core build-up and root post cementation

Makes work easier

- Visalys[®] Core can be easily applied directly into the cavity with minimal application force.
- Visalys[®] Core flows easily into the root canal but for core build-up still has excellent stability and can be easily modeled–also without matrices.
- Visalys[®] Core is precise and can be ground similar to dentin. Light curing in only 20 seconds.

Visalys® Core

- Core build-upRoot post cementation
- Highly recommended
- Recommended



	A	
Mixing tips, brown, 50 tips	👝 🎰	p. 51
Mixing tips, yellow, short, 50 tips	23 🖷	p. 51
Endo tips, transparent		p. 51
Intraoral tips, transparent		
Intraoral tips, yellow		p. 51
Applyfix [®] 8 dispensing gun		p. 52

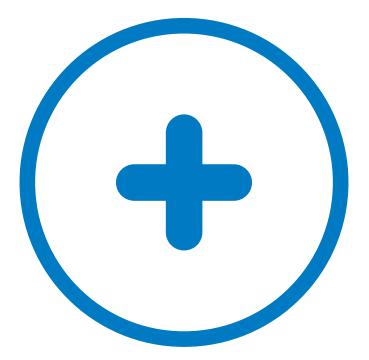


	Automix	Cartridge	
Visalys® Core	5 mL Intro pack 1:1	10 mL Normal pack 1:1 2 × 5-mL-automix-syringe, 20 brown mixing tips 10 intraoral tips, 10 endo tips	25 mL Normal pack 1:1 1 × 25-mL-cartridge, 20 yellow mixing tips, 20 intraoral tips
White Dentin	REF 13866 REF 13865	REF 13860 REF 13861	REF 13870 REF 13871

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OTHER PRODUCTS

MUCOPREN [®] SOFT	page 44	PANASIL [®] LAB PUTTY	page 47
MULTI TRAYS	page 46	ORTHOSKAVIDENT® C	page 48



SOOO ADHERENT IS MUCOPREN® SOFT



MUCOPREN® SOFT



Mucopren® Soft is a permanently soft durable relining material for removable dentures based on vinyl polysiloxane.

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Comfortable processing

- O Can be used chairside and is applied in just a few minutes
- O Mucopren[®] Soft can be easily processed with scalpel and bur

Very comfortable for patients

- The particularly smooth, hydrophobic silicone surface offers protection against microbial contamination
- O Permanently elastic

Durable

- O Outstanding adhesion, does not detach from the prosthesis
- O High tear resistance, long service life



Direct relining
Indirect relining

Highly recommended

Recommended





Mixing tips, green, 100 tips Mixing tips, blue, 60 tips Applyfix[®] 4 dispensing gun

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Mucopren [®] Soft		Silicone sealant	Adhesive	
Base set 50 mL Mucopren® Soft, 50 mL Mucopren® silicone sealant, 10 mL Mucopren® Adhesive, 7 green mixing tips, 20 blue mixing tips, 1 brush holder, 20 single-use brushes, 1 steel bur, accessories	100 mL Normal pack 1:1 → 2 × 50 mL Mucopren® Soft, 6 green mixing tips	50 mL Normal pack 1:1 → 1 × 50 mL Mucopren [®] silicone sealant, 10 blue mixing tips	10 mL Normal pack 10 mL Mucopren® Adhesive	
REF 28105	REF 15687	REF 15686	REF 14203	

OTHER PRODUCTS

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MULTI TRAYS



Partial impression trays made of plastic for single use for anatomical and/or precision impressions.



Saves time and money

- Combines three steps in one (impression, opposing dentition impression, and bite registration)
- O No additional adhesive required
- O Scannable

Simple and varied handling

- O Suitable for inlays/onlays or single crowns
- Stable, grooved tray sides for high strength; thin, mobile, tearproof gauze for precise impression results



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р. 12-16
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p. 23







Quadrant



Anterior 30 pieces	Posterior 50 pieces	Quadrant 30 pieces
REF 17752	REF 17750	REF 17753

PANASIL® LAB PUTTY

Panasil® lab Putty is a kneadable, addition-curing overcast material based on vinyl polysiloxane with a high final hardness and is therefore ideal for use as an overcast and bite index material. Other laboratory work such as model fabrication for fracture and crack repairs can be easily carried out.

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Effective use

- O Clean and easy dosage
- O Non-sticky, smooth kneading

All the advantages of an A silicone

- O Dimensional stability
- O High detail reproduction
- **O** Linear dimensional change \leq -0.1%

Easy to process

- Very short setting time (6 minutes at 23°C)
- Precise retention of the teeth in the overcast thanks to the high final hardness (Shore A 85)

Panasil[®] lab Putty

- Overcast material
- Bite index material
- Fracture repairs
- Crack repairs

Highly recommended

Recommended





10 kg **Economy pack** 1:1 1 × 5 kg catalyst paste, 1 × 5 kg base paste, 2 × dispensing scoops

REF 11153

ORTHOSKAVIDENT[®] C

Orthoskavident[®] **C** is a conditioning fluid for cleaning and drying prepared cavities and tooth stumps. Can be used for all external applications in the dental practice that require a clean and oil-free surface.

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Easy to handle

 Orthoskavident[®] C in the 150 mL glass bottle is easy to use and simple to process

Wide range of uses

- O For all external applications that require a clean and oil-free surface such as removing the smear layer on the surface of prepared teeth before attaching a fixed dental restoration or inserting fillings; replacing or repairing damaged veneers in the mouth
- O Sealing teeth; adhering brackets in orthodontics, etc.

Orthoskavident® C

- Cleaning and drying prepared cavities and tooth stumps
- Highly recommended
- Recommended

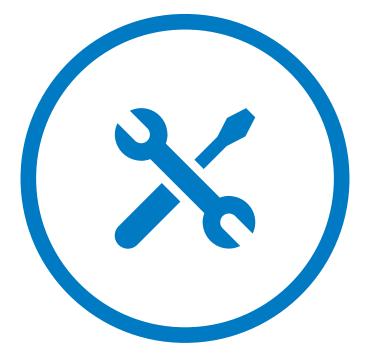




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ACCESSORIES

ADHESIVES	page 50	APPLYFIX [®]	page 52
MIXING SYSTEMS	page 51	SYMPRESS DISPENSER	page 53



ADHESIVES

To ensure the best possible adhesion between the impression tray and the impression material, it is recommended to use an adhesive that is appropriate for the chemical composition of the impression material.

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Available in 1 x 10 ml glass bottles:

- O Easy to apply
- O Quick drying time
- O Good visual inspection



- Best possible retention of the impression in the impression tray
- Adhesive and impression material are coordinated in terms of their chemistry.

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Identium® Adhesive

 Specifically for Vinylsiloxanether[®] impression material (Identium[®]).

Panasil® Adhesive

• Specifically for all addition-curing impression materials (A-silicones) such as Panasil[®].

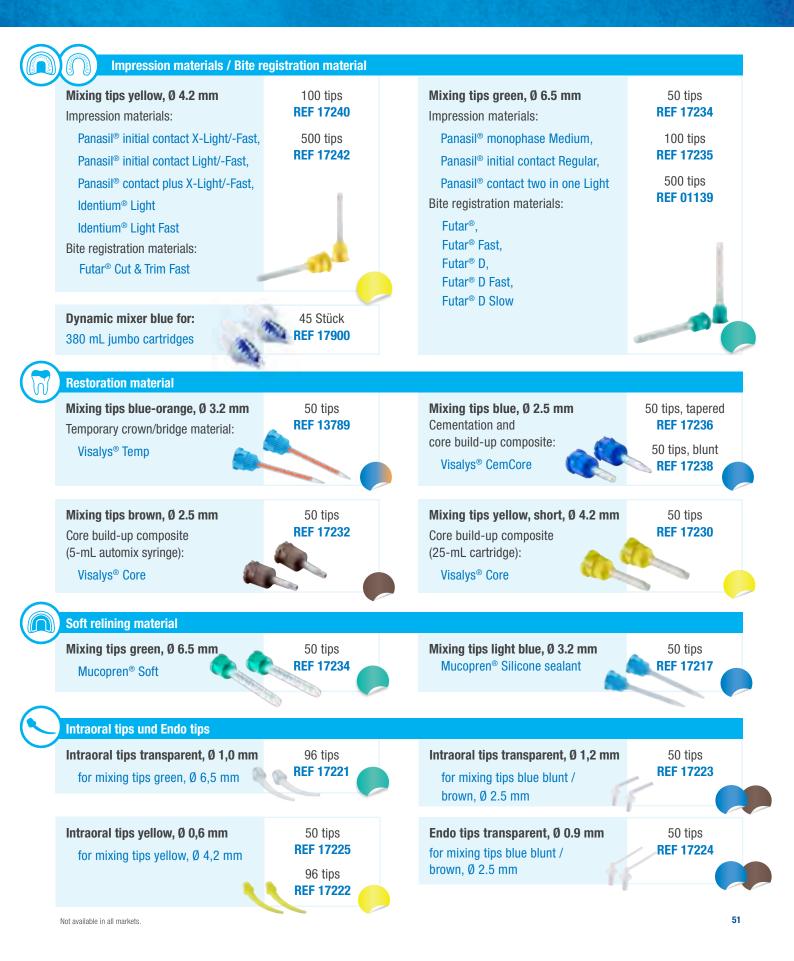
Mucopren® Adhesive

- O Optimal adhesion of Mucopren[®] Soft to acrylic dentures.
- Prevents the formation of gaps between the denture acrylic and the reline silicone.



Identium [®] Adhesive	Panasil [®] Adhesive	Mucopren [®] Adhesive
10 mL bottle	10 mL bottle	10 mL bottle
REF 14204	REF 14101	REF 14203

MIXING SYSTEMS



APPLYFIX[®]

Applyfix[®] are manual dispensing guns and syringes for dosing and applying modern impression materials. The plastic products can be easily disinfected to satisfy the most stringent hygiene requirements and have a compact ergonomic design, which makes them easy and efficient to use.

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Applyfix® 4

 Plastic dispensing gun for 50 mL cartridges with a 1:1/2:1 ratio. Suitable for: Identium[®], Silginat[®], Panasil[®], Futar[®] and Mucopren[®] Soft.

Applyfix[®] 5

 Plastic application syringe (with syringe tips) for precise application of syringeable impression materials.
 Suitable for: Identium[®], Panasil[®].

Applyfix[®] 6

 Plastic dispensing gun for 50 mL cartridges with a 4:1/10:1 ratio. Suitable for: Visalys[®] Temp.

Applyfix[®] 8

 Plastic dispensing gun for 25 mL cartridges with a 1:1/2:1 ratio. Suitable for: Visalys[®] Core.





Applyfix® 5 - + + + + + + + + + + + + + + + + + +	Applyfix [®] 6	Applyfix [®] 8 for 25 mL cartridges 1:1/2:1	Syringe tips for Applyfix [®] 5, 50 tips
REF 17204	REF 17208	REF 17212	REF 17207
	2 application syringes made of plastic, 12 syringe tips + accessories	2 application syringes made of plastic, 12 syringe tips + accessories	2 application syringes made of plastic, 12 syringe tips + accessories for 50 mL cartridges 4:1/10:1 for 25 mL cartridges 1:1/2:1

SYMPRESS DISPENSER

Electrical dosing and mixing device for automated mixing of impression materials in the Kettenbach Dental **Plug & Press® system** and related systems in a mixing ratio of 5:1 (impression materials in foil bags or jumbo cartridges).

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Precise and homogeneous dispensing

- O Bubble-free mixing for precise impression results
- Precise dispensing of the required quantity of material: just the material that's needed

Hygienic and reproducible

- Standardized dosing and mixing at the touch of a button, independent of the operator
- Simple and hygienic with electronic processes replacing manual operation

Adjustable extrusion speed

- O Automated advance/withdrawal
- O Different extrusion speeds for trays or syringe filling

Guaranteed reliable technology

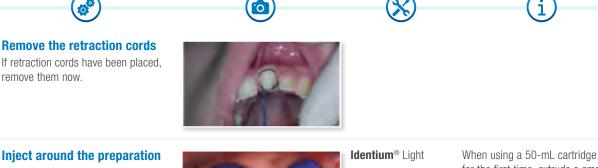
- O Simple and safe operation
- O Device is based on the latest state of the art with a 3 year manufacturer's warranty



Sympress dispenser	Wall mounting bracket	Unit cover	Pressure plate	Base
REF 35910	REF 35908	REF 35905	REF 35906	REF 35907

APPLICATION OF **IDENTIUM®** HEAVY AND **IDENTIUM®** LIGHT







8

Inject around the preparation Apply low-viscosity material into the sulcus and around the stump. The tooth surfaces are immediately wetted.





for the first time, extrude a small amount of impression material until both materials are uniformly forced out. Note the total processing time!

Warning: Do not fully depress the

tray! Do not hand the impression tray

over to others! Note the setting time

of the material!

10

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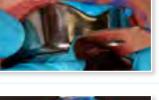
Insert into the patient's mouth

Insert the filled impression tray into the patient's mouth vertical to the occlusal plane while slowly applying pressure and hold in position.

After the material has completely set,

remove the impression and then rinse

Remove from the mouth



Remove the impression in the same direction as the tooth axis. Tilting the tray too much can cause permanent deformations.

Check the impression

and dry it.

Check that the preparation margins and surrounding mucosal areas have been fully transferred. Assess any imperfections.



Sugi® or pellet with Orthoskavident® C

13

12

Disinfect the impression Follow the manufacturer's instructions.



It is recommended to carry out an immersion disinfection, which involves wetting the surface entirely. A contact time of 10 minutes must be adhered to.

APPLICATION OF **PANASIL®** BINETICS PUTTY FAST WITH **PANASIL®** INITIAL CONTACT X-LIGHT





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APPLICATION OF IDENTIUM® MEDIUM

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1	Construct a custom-made tray	0		When using the open tray technique, note the outlets for the fixation screws for the impression posts. Reinforce the outlets with a surrounding sheath.
2	Fix the impression posts on the implant	物业业业		When using an open tray, the fixation screws should protrude sufficiently through the perforations to ensure good access to the screws once the impression has been taken.
3	Prepare a custom-made tray Apply adhesive 5 min before taking the impression. (Follow the manufacturer's instructions!)		Identium ® Adhesive (for Vinylsiloxanether®)	Warning: Use only the adhesive that is recommended for the impression material.
4	Assess the oral situation With residual teeth, block out any severe undercuts.	Ch.	Wax or other block-out materials	
5	Fill application syringe Pass the filled application syringe to the clinician and immediately continue with step 6.	The	Applyfix [®] 5	Avoid air inclusions when filling. When using an application syringe, ensure that no impression material residue remains in the syringe. After injection of the material, the filled impression tray must be inserted immediately. The oral temperature accelerates the setting of the material.
6	Mix the impression material Homogeneously mix the Identium [®] Medium and fill the custom-made tray. Leave the mixing tip in the material to prevent bubbles.	6	Identium [®] Medium, Sympress	When using the cartridge for the first time, ensure that the mixture is homogeneous. At least the first 3 cm should be discarded once.





Identium® Medium



Note the total processing time. Leave the application tip in the material to prevent bubbles.

Insert into and remove from the patient's mouth

Inject around the impression

The posts must be completely surrounded by the material.

Insert the filled impression tray into the patient's mouth and hold in position until the material has set. With the open tray technique, loosen the fixation screws of the transfer posts before removal. Clean and dry the impression.



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Warning: Do not hand the impression tray over to others! Note the setting time of the material! Do not fully depress the tray to the base.



7

8

posts

Check and, if necessary, reposition the impression posts

Check that the transfer posts are correctly positioned.



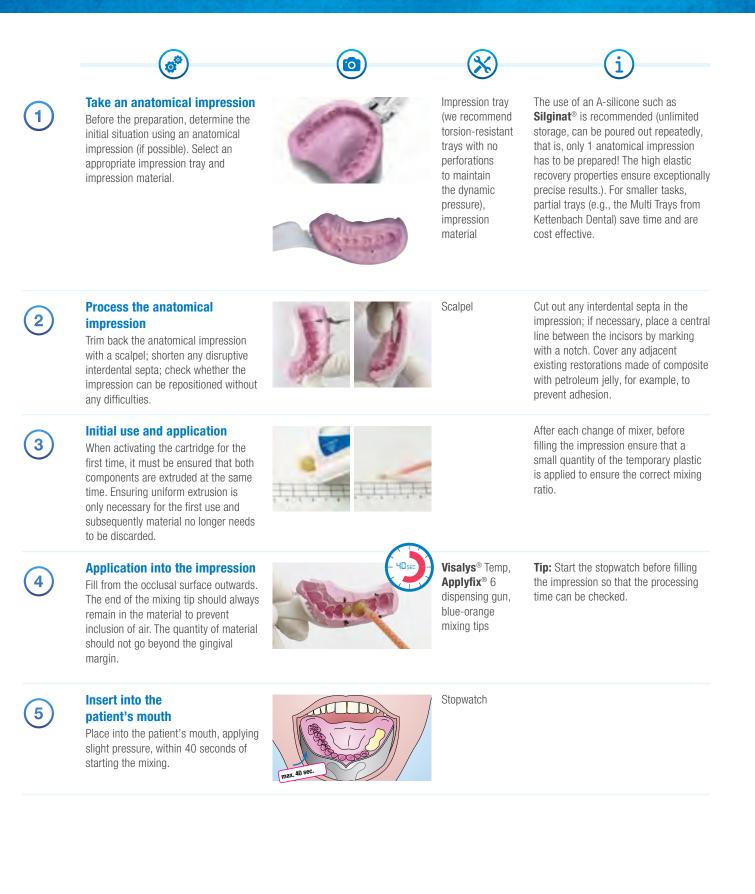
Disinfect the impression Follow the manufacturer's

instructions.



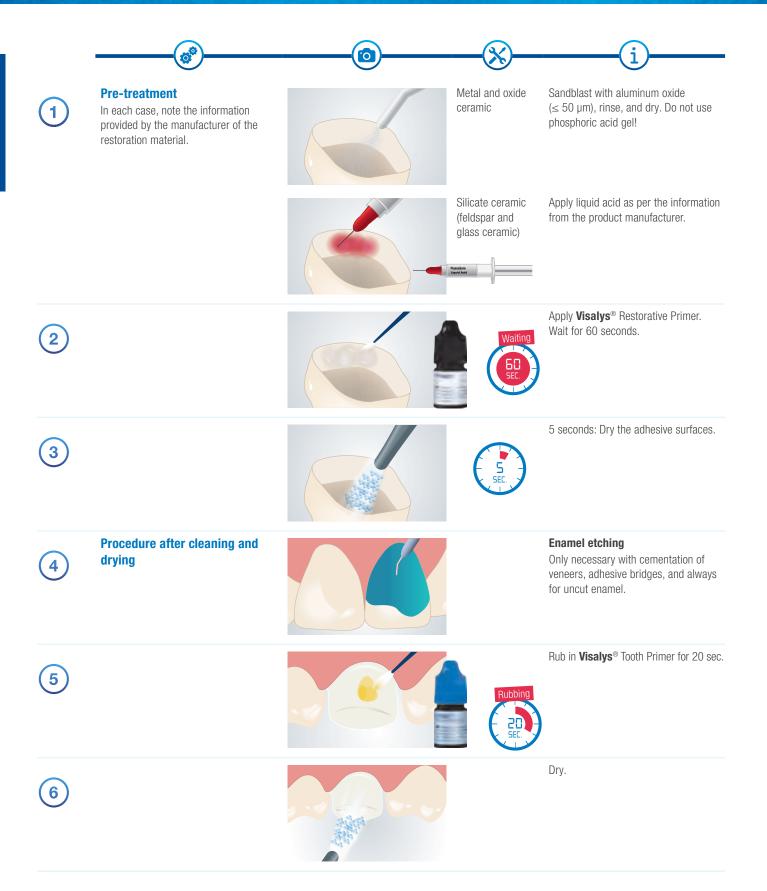
It is recommended to carry out an immersion disinfection, which involves wetting the surface entirely. A contact time of 10 minutes must be adhered to.

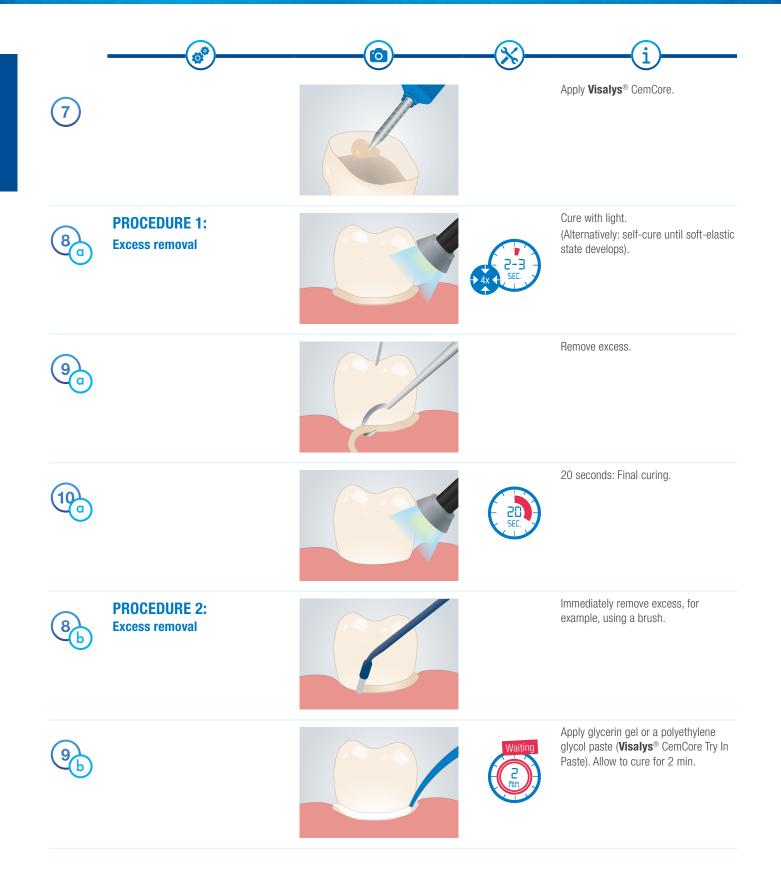
APPLICATION OF VISALYS® TEMP



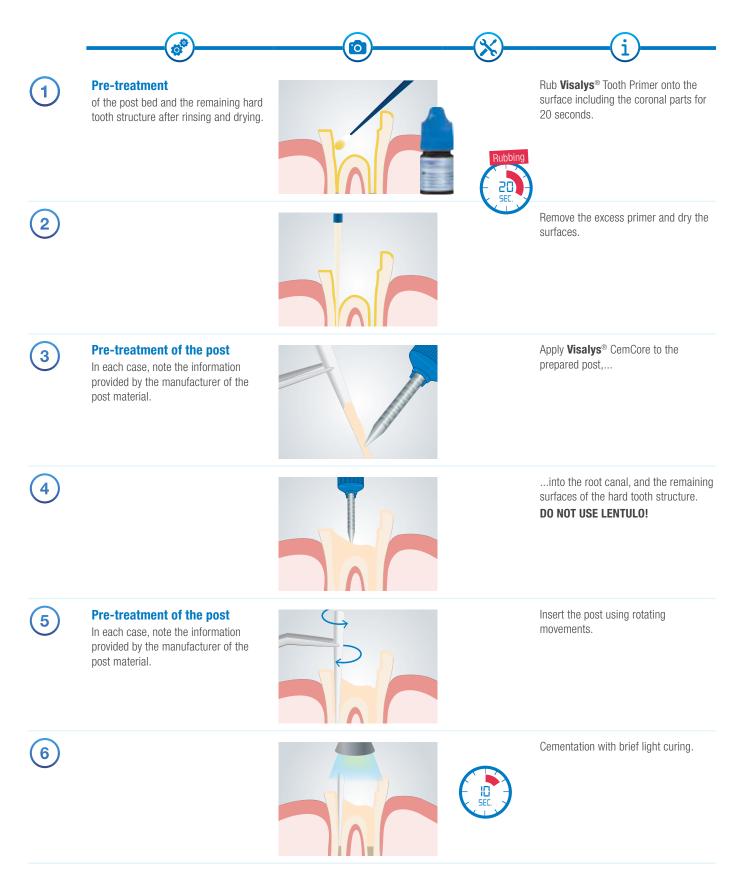
	(a ^o)		\otimes	i
6	Check the correct removal time Check the level of hardness in the patient's mouth using excess material.	- A	Check using a probe or similar	Earliest removal from the mouth after 1:30 min. including working time! Visalys [®] Temp reaches an optimal elastic phase for easy removal on average 2:00 min. after the start of mixing.
7	Remove from the patient's mouth Remove the temporary restoration from the patient's mouth during the elastic phase between 1:30 and 2:30 min. after the start of mixing.		Stopwatch	Early removal (temporary restoration is still very elastic): with severe undercuts and large bridge spans. Later removal (temporary restoration is already relatively hard): for smaller tasks and those with few undercuts.
8	Repairs Repairs (e.g., due to air bubbles or fracture sites) can be made directly with Visalys [®] Temp or a flowable composite. The oxygen inhibition layer (smear layer) should not be removed before carrying out repairs.	The second	Visalys [®] Temp or flowable composite	For older temporary restorations that were inserted into the patient's mouth several days earlier, the surface must first be mechanically roughened. A self-etching (enamel/dentin) bonding agent should be used in addition to the composite.
9	Finish 4:00 min after starting mixing, Visalys ® Temp has set completely and the temporary restoration can be finished.		Cross-cut stainless steel bur; narrow bur; disc	Before finishing the temporary restoration, the oxygen inhibition layer (smear layer) should be removed because otherwise the bur will rapidly become clogged and blunt. Swabs soaked in alcohol or disinfectant swabs are suitable for this purpose.
10	Polish Polishing the temporary restoration creates a smoother surface with higher luster that makes the accumulation of plaque more difficult and also feels more pleasant for the patient.	200	Composite polishers, cotton buff, goat hair brush	Generally, the surface of Visalys [®] Temp is already sufficiently smooth that additional polishing can usually be omitted altogether.
(11)	Cement The temporary fixation cement should, with a brush or spatula if necessary, be applied in a thin layer to all internal walls of the temporary restoration.	as	Temp. cement	Eugenol may impair the curing of luting composites; if composite materials are planned for the permanent restoration, a eugenol- free temporary luting cement should be used to cement the temporary restoration.

APPLICATION OF **VISALYS®** CEMCORE CEMENTATION





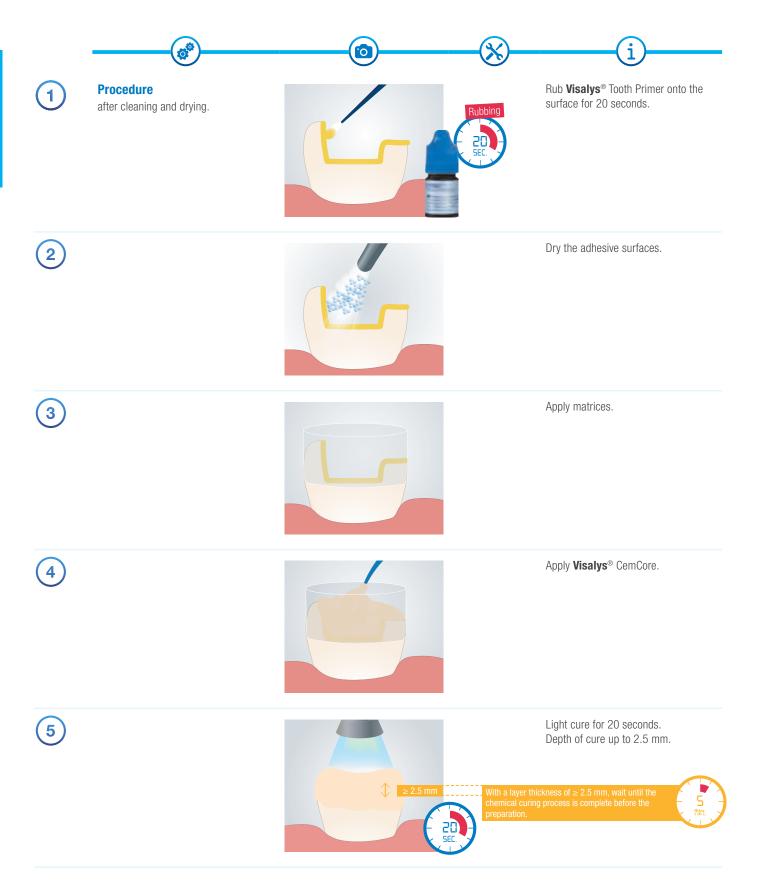
APPLICATION OF **VISALYS®** CEMCORE ROOT POST CEMENTATION



PRODUCT APPLICATION

101

APPLICATION OF **VISALYS®** CEMCORE CORE BUILD-UP



(Q[®]

APPLICATION OF VISALYS® CORE









2

3

Preparation

Remove any root filling with appropriate instruments or a reamer down to the desired depth.



E.g., with the instruments from the Erlanger system (Komet)

To create an apical seal, a root filling of about 3-4 mm should be left [1] with the post bed ideally having a total length of 2/3 of the root length but it should be at least the length of the clinical crown [1, 2].

Adjust the root post

Prepare the post bed

The preparation of the post bed should be carried out until all residual root filling material is removed from the walls and the root posts that fit the selected system drill can be inserted into the canal with slight friction.



Cleaning and disinfection of the post bed is carried out using 95% ethanol, for example. Then remove any excess ethanol from the post bed with paper points.



Adhesive cementation of the post

The root posts (depending on the choice and the manufacturer) can be cemented with conventional dental cements or adhesively with dual- or self-polymerizing composites (such as **Visalys**[®] Core). Any excess bonding material must be removed with a gentle air jet.





Selected root post; follow the root post manufacturer's instructions for preparation. Unlike conventional cementation, adhesive cementation has the advantage of producing a single unit made up of tooth, post, and core build-up. With adhesive insertion the risk of micro leaks along the cement seam and the associated risk of bacterial invasion is also reduced or prevented.

Fill the root canal



Now fill the post bed with **Visalys**[®] Core. Insert the root posts into the canals while rotating slightly. The material is initially light cured for 20 seconds (chemical curing after 5 minutes).





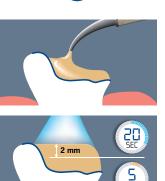
Visalys[®] Core in the 5 mL syringe with an endo tip; polymerization lamp

Endo tips make application into the root canal easier; the good flow properties of **Visalys**[®] Core allow the root post to be easily inserted.



Core build-up

The core can be prepared in the form of a build-up with **Visalys**[®] Core, producing a fixed unit of tooth, post, and build-up filling.



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Visalys[®] Core (5 mL syringe with an endo tip or 25 mL cartridge), polymerization lamp



Visalys[®] Core is flowable and adjusts optimally to the situation but is also stable enough to freely build up a core. 20 seconds light curing for a polymerization depth of 2 mm. 5 minutes chemical curing for unlimited polymerization depth.

7

After the build-up has set, the preparation can be carried out in line with the planned final restoration.

Prepare the tooth





The preparation margins should lie completely in the dentin in the form of a ferrule design to ensure better force transmission to prevent root fractures [1–5].

Example images

Images illustrate the use by Dr Marco Dziwak based on a correctly performed endodontic pretreatment that was carried out elsewhere.

Literature:

- 1. DGZMK statement. "Build-up of endodontically treated teeth." (2003).
- http://www.dgzmk.de/uploads/tx_szdgzmkdocuments/Aufbau_endodontisch_behandelter_Zaehne.pdf
- 2. Sorensen J.A., Martinoff J.T. "Clinically significant factors in dowel design." The Journal of Prosthetic Dentistry 52.1 (1984): 28-35.
- 3. Milot P., Stein R. S. "Root fracture in endodontically treated teeth related to post selection and crown design." The Journal of prosthetic dentistry 68.3 (1992): 428-435.
- 4. Hemmings K. W., King P. A., Setchell D. J. "Resistance to torsional forces of various post and core designs." The Journal of prosthetic dentistry 66.3 (1991): 325-329.
- 5. Barkhordar R. A., Radke R., Abbasi J., "Effect of metal collars on resistance of endodontically treated teeth to root fracture." The Journal of prosthetic dentistry 61.6 (1989): 676-678.

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