

BRILLIANT SMILES THAT TOOK OVER THE WORLD

FGM is a company that is known in the market for developing quality, technological and scientifically approved products to generate innovative solutions for odontology applications.

Pioneer in the manufacturing and leader in sales of dental whiteners in Brazil and in Latin America, FGM is presently a reference in the international odontology market, manufacturing more than 300 articles, including whiteners, adhesives, composites, cements, desensitizers, sealants, fiberglass posts, finishing and polishing materials, accessories, implants and bone graft.

FGM's products have transformed millions of smiles in Brazil and in more than 100 other countries in America, Africa, Asia y Oceania and Europe. For spreading its presence, the company has invested continuously in Research and Development, maintaining a close relationship with respected universities and renowned research centers with excellen reputation both nationally as well as internationally.

FGM's commitment is to offer more safety and practicality for the dentist to guarantee more tranquility and well-being for the patient by means of products that have been providing effective and surprising results in the most different areas of odontology.



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PRODUCT APPLICABILITY

ALLCEM VENEER APS

& TRY-IN

"APJ

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POLYMERIZATION SYSTEM SURPRISING RESULTS IN A SINGLE TECHNOLOGY.

ADVANCED

esthetics and functionality are, nowadays, great premises of modern dentistry because a healthy, functional and harmonic smile interferes not only in the patient's oral health but also, above all, in their quality of living and self-esteem. Innumerable techniques have been developed and tested through the years with the objective of fulfilling the most diverse demands in the dentistry universe. It is a constant search for solutions that prioritize patients' satisfaction, generating agility and effective results for the daily routine of dental professionals. Within that context, FGM introduces in a pioneering manner, its most recent technology: APS (Advanced Polymerization System). It is an innovative photoinitiator system that provides exclusive advantages to the line of composites, cements and adhesives, guaranteeing superior performance to those materials.

UNDERSTANDING THE LIGHT-CURING PROCESS

Conventional light-curing resinous materials include camphorquinone in their formulas, as the main photoinitiator. That substance, when under a specific light stimulus, reacts with a tertiary amine releasing free radicals, which start the curing of the methacrylate

groups. The amount of methacrylate groups that react determines the quality of the curing of the material, or rather, the conversion rate of monomers into polymers. A high conversion degree is important, for example, to assure adequate mechanical resistance for the material.

APS CONCEPT (ADVANCED POLYMERIZATION SYSTEM)

The exclusive APS system counts on a small amount of camphorquinone in its formula, used only to trigger a chain reaction with the multiplication of free radicals as the sequential propagation takes place. For that, several initiators, co-initiators (different from the traditional ones), camphorquinone and a tertiary amine exchange electrons and protons generating the free radicals that are needed for the curing. That way, the camphorquinone was added just as a "trigger", because, since it is sensitized by the light length emitted by all the light-curing devices available in the market, professionals can use all the benefits of the APS even when using their conventional light-curing equipment, without having to invest in specific equipment.

Conventional photoinitiators

EXCLUSIVE ADVANTAGES OF THE APS TECHNOLOGY

A PURER AND MORE NATURAL COLORATION FOR RESINOUS MATERIALS:

Camphorquinone has a strong orangey-yellow coloration which interferes directly in the color of the material to which it is added, resulting in an artificial look. Considering that its concentration in the APS is very low, one can expect a lower interference of that color in the color of cements, composites and adhesives. That allows for the color of a composite to be even closer to the VITA shade guide even before light curing, which guarantees more control over the process and assertiveness for the final result.

NO COLOR (Δ E) OR OPACITY (Δ O) ALTERATION BEFORE/ AFTER LIGHT CURING:

Normally, materials that are rich in camphorquinone considerably change their color and opacity after light curing, which increases the aesthetic unpredictability in cementations and restorations. Materials with APS are much less influenced by that factor and may present a ΔE lower than 3, in which color change is imperceptible to the naked eye. Besides increasing predictability, that decreases the need for color check mockups and allows, for example, for the replacement of a composite increment even before light curing it during a restoration.

EVEN MORE SURPRISING RESULTS WITH COLORLESS ADHESIVES

In regular systems, the adhesive starts from an intense coloration and has its color decreased as it is light cured to its maximum degree. Generally, the difference between the initial and final colors (called ΔE) depends on several factors, among which are: the capacity of the light-curing equipment, duration of light curing and thickness of the ceramic veneer for guaranteeing the maximum use of camphorquinone, and, consequently, color change. With the APS system, the adhesive is practically colorless, so, there is no visible color variation (ΔE) between before and after light curing, which guarantees less color interference in restorations and cementations, generating much superior aesthetic results than with the conventional technology.

The advantages APS presents vary according to each material to which it is added. Basically, the most noticeable are:



INCREASE IN THE CONVERSION DEGREE:

The percentage of monomers that convert into polymers is directly related to the photoinitiating system that is present in the material. The APS technology allows for the elevation of the conversion degree, making the polymer offer its maximum mechanical performance.

INCREASE IN CURE DEPTH:

Like the conversion of monomers, the cure depth also benefits from the APS due to its capacity to generate free radicals in a sequence of reactions. That is particularly important when bulk-fill type composites are used in large increments. With APS, the deeper portions of the restorations will be adequately cured offering more safety for the work.



INCREASE IN THE WORKING TIME UNDER AMBIENT LIGHT:

The conventional photoinitiating system in resinous materials makes them react to ambient light, which limits the time the professional has to work in light-curing materials. With APS, cements and composites gain a significant increase in manipulation time allowing the professional to create restorations with tranquility.

VIVERSAL

FGM PRODUCTS WITH THE APS TECHNOLOGY		
Viltra	Light-curing composite resin with spheroidal loads of modified Zirconia Silicate. It shows excellent polishing capacity due to surfaces with a high degree of shine and smoothness. Moreover, it is BPA-free.	 Shades compatible with the VITA shade guide. Low ΔE and ΔO before/ after light curing. Increased working time under room light. Greater cure depth. Higher conversion degree.
CONSCORTADO CONSCORTADO UNIVERSAL	Light-curing adhesive with MDP in its formula, capable of generating resistant and long-lasting adhesive films.	 Practically colorless. Greater conversion degree.
Allcem Veneer ^{#ADS}	Light-curing resinous cement for veneers and no-prep veneers. It has 63% of weight load, fluorescence and opacity. Allcem Veneer APS stands out for its color stability, which allows for aesthetic longevity. The cement also shows excellent consistency, facilitating product application and manipulation.	 Very low ΔE and ΔO before/after light curing. Greater color stability.
OPUS BULK FILL OPUS BULK FILL	Low shrinkage light-curing composites for large increments. They have excellent mechanical properties and great adaptation to the walls of the cavity, which guarantee more longevity to restorations.	 Greater cure depth. Higher conversion dregree. Increased working time under room light.



You transform it into art.

Vittra APS is the **high aesthetic** composite that every artist desires, with the **technology** and the **simplicity** that they need.





(FGM)



Leader in Latin America, present in 100 countries.



DESCRIPTION | INDICATIONS

Whiteness Perfect is a take-home whitening gel that offers patients the best there is in efficacy associated to a very comfortable treatment due to its combination of desensitizing agents.

Applicability: dentistry, hebiatry, geriodontics and orthodontics (post-orthodontic treatment).

FEATURES

- Double desensitizing action: potassium nitrate (neural action) and sodium fluoride (occlusive action);
- pH close to neutral, which prevents demineralization of enamel and dentin;
- Reduced daily use: 2 to 4 hours for concentrations of 10% and 16% and just 1 hour for the 22% version;
- Does not interfere on enamel¹ and composites² microhardness;
- Each 3g syringe lasts up to 9 applications;

- Does not interfere on ceramic surface; ³
- Proven laboratorial and clinical effectiveness; 4.5.6.7.8.9.10.11,12
- Treatment lasts around 14 days;
- High water content, which maintains tooth hydration;

· 1 case to store the trays

- Reduces risk of caries due to its fluoride content; ¹³
- Sales leader in Latin America for over 18 years;
- Excellent viscosity.



2 soft-tray sheets of 1mm thickness
 1 case to store the trays

*Regulation 1223 | 2009| EC.



PROCEDURE

Plaster models.

Source: FGM.

Before









Vacuum-forming.

Trimming of the tray.

Gel application.

Placing the tray.

CLINICAL CASES



After

Source: Dr. Bruno Lippmann and Dr. Rafaella Ronchi Zinelli.



	DAILY USE	TREATMENT DURATION
10%	3-4h	3-4 weeks
16%	3-4h	2-3 weeks
22%	1,5h	2 weeks

Source: Dr. Leticia Pereira Possagno, Dr. Yarin Yumi Narazaki, Dr. Cristian Higashi and Dr. Antonio Sakamoto Junior.



• 50 syringes with 3g of gel each, individually packed

• 50 syringes with 3g of gel each, individually packed

*Regulation 1223 | 2009 | EC.



DESCRIPTION | INDICATIONS

White Class is a take-home whitening gel that suits even the busiest routines. With daily time use as low as 30 minutes (10% version), the gel is very practical and versatile.

Applicability: dentistry, hebiatry, geriodontics and orthodontics (post-orthodontic treatment).

FEATURES

- Double desensitizing action: potassium nitrate (neural action) and sodium fluoride (occlusive action);
- Contains calcium: reduces dental demirenalization during whitening;
- Less dailytime use: 2 hours to 30 minutes daily;
- Treatment lasts around 14 days;
- Each 3g syringe lasts up to 9 applications;
- Excellent viscosity;

- The mini kit comes with enough gel for whitening both arches;
- Does not interfere on the microhardness¹³ and roughness¹⁴ of composites;
- Proven clinical effectiveness; ¹⁵
- High water content, which maintains tooth hydration;
- pH close to neutral, which prevents demineralization of enamel and dentin.

• 1 syringe with 3g of gel at 4%, 6%, 7.5% or 10%

white





- 4 syringes with 3g of gel each
 Applicator tips
- 1tray case
- · 1 next appointment reminder card

*Regulation 1223 | 2009 | EC.



PROCEDURE









Plaster models. Source: FGM.

Vacuum-forming.

Trimming of the tray.

Gel applied to the tray.

Placing the tray.

CLINICAL CASE



 Before
 After

 Source: Dr. Bruno Lippmann, Dr. Rafaella Ronchi Zinelli and Dr. Rafael Cury Cecato.



Dental enamel microhardness after one application of whitening gel with and without calcium.

Results show that the microhardness of dental enamel treated with White Class with calcium presents less reduction compared to gels without calcium, which makes dental whitening an even more conservative procedure.

Source: Prof. Dr. Marcelo Giannini - FOP - Unicamp - Brazil.





DESCRIPTION | INDICATIONS

Whiteness HP AutoMixx is an in-office whitening gel that gathers all the great features of the whitening line of products. The product comes in a double-body syringe and offers more practicality and the well-known efficacy to impress even the most demanding patients.

Applicability: dentistry, hebiatry, geriodontics and orthodontics (post-orthodontic treatment).

FEATURES

- Single application per session: the product may be kept from 40 to 50 minutes in contact with teeth with no need for changing the gel, since its pH remains neutral and stable during the entire session;
- Practicality: phases are mixed via a self-mixing nozzle and the product is released ready for application, with no need for manual mixing;
- Cost reduction: remaining content can be stored and used later;
- No light source required: it is not necessary to use accelerating light sources (LED systems, high power laser and others);
- Gel with adequate and pleasant viscosity;
- Yield: the syringe yields up to 4 complete applications (smile line) on both arches.

- No color alteration: the product has bluish-green color and undergoes no color alteration during the process, facilitating visual control;
- Contains calcium: aiming to keep enamel integrity during the whitening process, a soluble calcium source was added to the product formulation. Studies show that calcium significantly improves enamel microhardness;
- With heat blocker: when some sort of light source is used, the heat blocker avoids that the heat generated by these sources reach the pulp, preventing hypersensitivity;
- Versatile combination with take-home technique;
- The kit comes with Neutralize: a solution that decomposes the peroxide in case the gel contacts oral soft tissues;





PROCEDURE



Remove the syringe lid and place the self-mixing nozzle. Note that the nozzle must be correctly placed.



With the tip correctly placed, dispense a small amount of gel in a dappen pot to guarantee that the product is properly mixed.





Product application.

Gel removal after 40 to 50 minutes.



Discard the mixing nozzle and place the lid back to preserve the remaining content.

Source: FGM.

CLINICAL CASE



Source: Dr. Bruno Lippmann and Dr. Rafaella Ronchi Zinelli.



After



	APPLICATION TIME PER SESSION	INTERVAL BETWEEN SESSIONS		
35%	40 to 50min single application	7 days		
6%	30 to 50min single application	5-7 days		

*Regulation 1223 | 2009 | EC.

•



Hydrogen peroxide at 35% for in-office whitening.

DESCRIPTION | INDICATIONS

Whiteness HP Blue is an in-office whitening system that makes mixing of the gel very easy due to the syringe-to-syringe system. Pre-dosed portions can be applied to enamel for 40 minutes in a very practical session. This and other features are combined to create a great expertence for both professional and patient.

Applicability: dentistry, hebiatry, geriodontics and orthodontics (post-orthodontic treatment).

FEATURES

- Pre-dosed portions: effective control of the proportion of both phases (hydrogen peroxide and thickener);
- Self-catalyzed: contains catalysts to make it more active and efficient with no light activation required;
- Both syringes are attached, providing easy mixing and application directly to tooth surface;
- ♦ Single application per session: the procedure becomes faster and more productive;
- Contains calcium: does not interfere with the microhardness of enamel;
- ♦ Reduced time use: the gel remains in contact with teeth for 40 minutes:

- Does not change color during the procedure;
- Excellent viscosity: the gel is easy to apply and does not run off;
- The kit lasts for 2 whitening sessions on 3 patients;
- Versatile combination with take-home technique;
- The kit comes with Neutralize: a solution that decomposes the peroxide in case the gel comes into contact with oral tissue;
- Proven laboratorial and clinical effectiveness; 17,18,19, 20
- ♦ Alcaline pH during the entire application. ^{21,22,23}
- Low level of hypersensitivity; ¹⁶



- 1 set of syringes with 1,2g
- 1 syringe coupling device 1 syringe of Top dam with 1g
- Applicator tips



- 6 sets of syringes (1.2g per set, 7.2g of gel in total)
- · 1 bottle with 2g of neutralizing solution for peroxide (Neutralize FGM)
- 1 suringe of Top dam with 2g
- 6 syringe coupling devices
- Applicator tips



PROCEDURE

Lip retractor (Arcflex,

FGM) inserted.





Application of Desensibilize

KF2% for 10 minutes.



Application of gingival barrier (Top dam, FGM).



The gel is mixed after attaching both syringes.



Gel application. Source: FGM. Gel applied on teeth.



Gel being removed at the end of the procedure.



Polishing of whitened teeth.

CLINICAL CASE



Before

After

Source: Dr. Jorge Eustáquio, Dr. Illana Pais Tenório and Dr. Nicolle Vaz de Almeida Nepomuceno.



APPLICATION TIME
PER SESSIONINTERVAL BETWEEN
SESSIONS35%40 min
single application7 days

pH values of different whitening gels measured in four times: initial, 30 minutes after mixing, 45 minutes after mixing and 7 days after mixing.

Note that Whiteness HP Blue maintains its neutral pH even 7 days after mixing, which guarantees safety for the enamel.

Source: Bobsin, D.; Ouriques, M.C. Avaliação in vitro do pH de géis clareadores de consultório em diferentes tempos após a ativação. 2011. 30f. Monografia (Graduação em Odontologia), Universidade Federal do Rio Grande do Sul, Rio Grande do Sul. 2011.

WHITENING PRODUCTS

WHITENESS HP & WHITENESS HP MAXX

Hydrogen peroxide at 35% for in-office whitening.

DESCRIPTION | INDICATIONS

Whiteness HP and HP Maxx are in-office whitening systems presented in bottles. The products can be used for both vital and non vital teeth. HP Maxx has a heat blocker that prevents teeth from heating when a light unit is used during the whitening procedure..

Applicability: dentistry, endodontics, hebiatry, geriodontics and orthodontics (post-orthodontic treatment).

FEATURES

- Drop-by-drop mixing system: allows the product to be manipulated in quantities as necessary;
- Excellent viscosity: the gel does not run off;
- The gel has a vibrant color, which allows better control of the area where it is applied;
- Color changes during the procedure, which indicates the progress of the chemical reaction;
- Does not interfere on enamel morphology; ³⁵
- Does not interfere on teeth risk to caries; ³⁴
- Versatile combination with take-home technique;

- Application times: 3 applications of 15 minutes each per session. Up to 3 sessions per patient;
- Proven laboratorial and clinical efficiency with or without light source (LED, Laser, etc.); ^{24,25,27,28,29,30,31}
- Does not interfere on resin composite roughness; ³³
- The kit comes with Neutralize: a solution that decomposes the peroxide in case the gel contacts oral soft tissues;
- pH close to neutral, wich does not cause decalcification of enamel nor dentin.
- Whiteness HP Maxx contains heat blocker in its formula, minimizing pulp heating³² and, consequentely, minimizing hipersensitivity;



- 1 bottle with 10g of concentrated hydrogen peroxide • 1 bottle with 5g of thickener
- 1 bottle with 2g of neutralizing solution for peroxide
- (Neutralize, FGM)
- 1 spatula and 1 plate to prepare the gel • 1 syringe of Top dam with 2g
- Applicator tipe
- Applicator tips

 \cdot 1 bottle with 10g of concentrated

- hydrogen peroxide
- 1 bottle with 5g of thickener
- · 1 bottle with 2g of neutralizing
- solution for peroxide (Neutralize, FGM) • 1 spatula and 1 plate to prepare the gel
- 1 bottle with 4g of concentrated hydrogen peroxide
- 1 bottle with 2g of thickener
- 1 bottle with 2g of neutralizing solution
- for peroxide (Neutralize, FGM)
 - · 1 spatula and 1 plate to prepare the gel





PROCEDURES

WHITENESS HP 35%







Drop-by-drop mixing system. Mixing both fases. Source: EGM



Gel applied on teeth.

Gel changes to colorless.

WHITENESS HP MAXX 35%







Drop-by-drop mixing system. Mixing both fases. Source: FGM.

Gel applied on teeth.

Gel color changes to green.

CLINICAL CASES

WHITENESS HP 35%



Before After Source: Dr. Bruno Lippmann and Dr. Rafaella Ronchi Zinelli.

WHITENESS HP MAXX 35%



Before Source: Prof. Dr. Javier Lema.



After



- 1 bottle with 10g of concentrated hydrogen peroxide 1 bottle with 5g of thickener
- · 1 bottle with 2g of neutralizing solution for peroxide (Neutralize, FGM)
- 1 spatula and 1 plate to prepare the gel
 1 syringe of Top dam with 2g
 Applicator tips

- 1 bottle with 4g of concentrated hydrogen peroxide 1 bottle with 2g of thickener
- · 1 bottle with 2g of neutralizing solution for peroxide
- (Neutralize, FGM)
- 1 spatula and 1 plate to prepare the gel
 1 syringe of Top dam with 1g
 Applicator tips





Light absorption - heat blocker from Whiteness HP Maxx 35%

The test shows that, when irradiated by halogen light, Whiteness HP Maxx is able to absorb energy and minimize the heat in the pulp chamber, leading to the heat-blocking effect.

Note: when using light during the procedure, choose Whiteness HP Maxx to prevent teeth from overheating.

Source: Torres CRG, Torres ACM, Lima VF, Ribeiro CF, dos Santos JRC, Gama LMF. Variação térmica da câmara pulpar e do gel clareador bloqueador de infravermelho ativado com lâmpada halógena. Odonto Ciência, v. 23, n. 1, p. 72-76, 2008.



Source: Kossatz, S.; Dalanhol, A.P.; Cunha, T.; Loguercio, A.D.; Reis, A. Effect of light activation on tooth sensitivity after in-office bleaching. Operative Dentistry, v. 36, n. 3, p. 251-257, 2011.

Changes in shade guide unites (SGU) observed in patients who underwent dental whitening treatment with Whiteness HP Maxx with and without Led/Laser application

Note that both procedures were effective in terms of whitening, as statistically similar changes in the total number of SGUs were observed after two in-office whitening sessions.

Similar lowercase letters indicate statistically similar means within columns. Similar uppercase letter indicate statistically similar means within rows (p<0.05).

WHITENESS SUPER-ENDO

Carbamide peroxide at 37% for in-office whitening of non-vital teeth.

DESCRIPTION | INDICATIONS

Whiteness Super-endo is a whitening gel that comes ready to use and it is intended for whitening non-vital teeth. The gel must be applied inside the pulp chamber, according to the walking bleach technique.

Applicability: dentistry, endodontics, hebiatry and geriodontics.

FEATURES

- Practical: the gel comes ready to use, no mixing required;
- Excellent viscosity: easy application in the pulp chamber, the gel does not run off;
- Great affinity with water: the product is easily removed in between sessions or after treatment;

wniteness super-endo

 Excellent cost-benefit ratio: each syringe last up to 70 applications;

whitenesssuper

Chic

WHITENING PRODUCTS

- Can be combined with the external whitening technique;
- Treatment does not interfere on the adhesion of existing restorations.





PROCEDURE



Darkened tooth.



Product application.



WHITENESS RM



Silicon carbide and hydrochloric acid at 6% for microabrasion.

DESCRIPTION | INDICATIONS

Whiteness RM is a paste composed of hydrochloric acid at 6% and silicon carbide grains intended to remove superficial staining from enamel. The paste is able to remove stains caused by hypoplasia, mild to moderate levels of fluorosis, inactive caries and similar - all restricted to enamel surface.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics and orthodontics.

FEATURES

- Greater abrasion: the association of carbide silicon with hydrochloric acid gives the product the ability to promote both mechanical and chemical wear of the staining;
- Efficacy: the silicon carbide grains are sharper/harder than pumice stone offering more efficiency for abrasion;
- Versatility: can be combined with dental whitening;

- Comfort: does not cause dental sensitivity;
- Definitive stain removal: no recurrence;
- Excellent viscosity: does not run off dental surface;
- Gray color that evidences the product when applied;
- Practicality: can be applied manually or with the aid of a rubber cup or spatula without the need for previous mixing;
- No waste: tips release amounts needed, preventing waste;
- ♦ Highly efficient on removing enamel stains. ^{36,37,38}



PROCEDURE





ith spatula. Application with a brush

Application with rubber cup.

Source: Dr. Leonardo Muniz, Dr. Maira Athaide and Dr. Marcos Barceleiro.



	APPLICATION TIME PER SESSION	NUMBER OF APPLICATIONS	NUMBER OF SESSIONS
6%	10 second application	Up to 15	1

CLINICAL CASE



Source: Dr. Alexander Nishida and Dr. Carlos Francci.

WHITENESS PLATES FOR TRAYS

EVA sheets for custom dental trays.

DESCRIPTION | INDICATIONS

EVA sheets available in 1mm, 2mm or 3mm thick, for custom trays made by vacuum forming. The 1mm sheet is intended for dental whitening, while the other thicknesses are made to protect class IV restorations.

Applicability: dentistry, hebiatry, geriodontics, orthodontics and prosthetics.

FEATURES

- High translucency that does not affect aesthetics;
- Available in square or round shapes and in three thicknesses;

Highly translucent and accurate;

MANU

Salmo

(FGM)

moldeiras

whiteness

 Flexible, with elastic memory, which does not irritate soft tissues.



Packages with 5 PLATES • 5 plates (square or round) with 1mm each



Packages with 2 PLATES · 2 plates (square or round) with 2mm each Packages with 2 PLATES · 2 plates (square or round) with 3mm each

QUADRAGA

(FGM)

moldeiras

whiteness

133

WHITENING PRODUCTS

133

FGM

oldeiras

PROCEDURE



Plaster models. Source: FGM.





Trimming of the tray.

Patient wearing the tray.



DESCRIPTION | INDICATIONS

Top dam is a light curing resin dam for relative isolation of gingival tissue when performing in-office whitening. The resin also works as auxiliary to total dam isolation.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics and prosthetics.

FEATURES

- Viscosity and thixotropy suitable for easy and perfect coverage of soft tissues without flowing into undesirable regions;
- Excellent sealing power;
- Perfect adherence to the gums;

- Does not come off the gingiva unless it is forced;
- Comes off in one piece when removing it;
- Does not irritate gingival tissues;
- Variety of colors, to contrast the bleaching gel colors.



1 syringe with 2g

- Applicator tips
- Available colors: blue, green, violet and pearl

PROCEDURE



Product application.

Light curing.



Whitening gel application (notice color contrast). Source: FGM.



WHITENING PRODUCTS



Lip and cheek retractor with tongue controller and bite rest.

DESCRIPTION | INDICATIONS

Arcflex is a lip and cheek retractor that offers unique comfort since the patient can remain biting (occluding position) during the session. The product provides a wide access to operative field and also keeps the tongue in a position to avoid it to contact teeth during procedures.

Applicability: surgery, dentistry, endodontics , pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Quickassembling: the product can be fully disassembled to facilitate disinfection and sterilization;
- It can be sterilized in autoclave (up to 134°C);
- Available in medium (M) and large (L) sizes;
- Tongue controller: curved device that allows the patient to better position and control their tongue;
- Jaw resting platforms: it has two platforms specially created and positioned to allow the patient to relax their jaw, occluding directly,
- Cheek retractor: the design of the main arch allows excellent access to the buccal face of dental arches without affecting the dentist's field of vision;
- Placement wings: it has two support wings positioned in the center of the curvature of the concave parts that facilitate insertion, allowing the professional to hold and close the product with only one hand while helping oral insertion with the other. The product has reduced size when closed and its insertion is therefore easy and practical.



·1 lip retractor medium or large



PROCEDURE



Product insertion. Source: FGM.

COMBINED TECHNIQUE D Е N L W н Е N Ν G Т Α Т

1

The combined technique is the association of in-office and supervised at-home dental whitening. The greatest benefit of this technique is that it allows for the first results to be noticed right in the first days of treatment. That motivates the patient and increases their adherence to the treatment. In addition, it can be considered that the at-home whitening takes less time, which brings a benefit to the patient's routine.



DESENSITIZERS



DESENSIBILIZE KF 2% & KF 0,2%



Gel of potassium nitrate and sodium fluoride at 0,2% or 2% desensitization during whitening.

DESCRIPTION | INDICATIONS

Desensibilize KF 0,2% or 2% are gels containing potassium nitrate and sodium fluoride at 0,2% or 2%. The KF 0,2% version is intended for previous desensitization on take-home whitening, while the KF 2% version is indicated in-office whitening. Gels are very efficient since they combine two different active principles for the same objective. As they contain fluoride, they are also indicated when remineralization is required (after microabrasion treatment, recovery of incipient caries on enamel, after periodontal scaling).

Applicability: dentistry, hebiatry, geriodontics and orthodontics.

FEATURES

- Effectiveness: applying Desensibilize before in-office whitening reduces the frequency and intensity of hypersensitivity inherent to this procedure; ^{46,47}
- Agility: the gel remains on teeth for 10 minutes right before and/or after the whitening procedure;
- Does not interfere on whitening efficiency; ⁴⁶

- Excellent viscosity: does not run off;
- Colorless gel;
- Dual desensitizing action: neural action by the potassium nitrate and occlusive action by the sodium fluoride;
- Available in two concentrations: 0,2% for at-home whitening and 2% for in-office whitening.



1 syringe with 2.5g
Applicator tip

APPLICATIONS



Desensibilize KF 2% applied before/after in-office whitening.



Desensibilize KF 0,2% applied to tray for at-home whitening. Source: FGM.

DESENSITIZERS



Incidence of hypersensitivity with and without application of Desensibilize KF 2% before whitening.

Source: Dr. Alessandro Loguercio (UEPG/PR – Brazil)



Levels of hypersensitivity to dental whitening with and without application of Desensibilize KF 2%.

After remaining in contact with teeth for 10 minutes prior to in-office whitening, Desensibilize KF2% showed effective reduction of incidence and intensity of dental hypersensitivity.

Source: Dr. Alessandro Loguercio et al. (UEPG/PR – Brazil)

DESENSIBILIZE KF 2%

- Applications are performed only in-office due to its high concentration.
- Can be used before and/or after the whitening procedure.
- Application of Desensibilize KF 2% prior to inoffice dental whitening drastically reduces dental hypersensitivity during the procedure.

- DESENSIBILIZE KF 0,2%
- Applications can be performed at home (under dentist's supervision).
- Can be used before and/or after the whitening procedure.
- Desensibilize can be taken home and applied by the patient in the whitening trays.







DESCRIPTION | INDICATIONS

Desensibilize is a solution that combines two active principles, potassium nitrate and strontium chloride, to provide desensitization to teeth presenting hypersensitivity to temperature variations, exposure of cementum, non-carious cervical lesions (with or without cavities), cracks or microcracks, and also for those that has undergone periodontal treatment.

Applicability: dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- ♦ Effective dentin tubules sealing; ⁴⁸
- High penetration power and obliteration of dentin tubules and enamel microcracks;
- Dual desensitizing action: occlusion of dentin tubules by the strontium chloride and neural action by the potassium nitrate.



PROCEDURE



Teeth with gingival recession.

Prophylaxys.



Product application. Source: FGM. Dry varnish.

COMPOSITES



Light-curing resin composite.

DESCRIPTION | INDICATIONS

Vittra APS is a light-curing resin composite for class I, II, III, IV, V and VI direct restorations on anterior and posterior teeth as well as reanatomization of tooth structure. In some cases, it can be used to repair small portions of ceramic prosthetic pieces.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

"APJ

- Shade predictability: very low visual variation of shade and opacity before and after light curing;
- Longer working time even under reflector's light;
- Excellent mechanical properties;
- Load particles of silicon-zirconia complex;
- Average load size of 200nm;
- High polishing and shining capability;

- High wear resistance;
- High flexural strength, compressive strength and tenacity to fracture;
- High Knoop hardness;
- Fluorescence and opalescence;
- Simplified shade and opacity system;
- Bisphenol-A free.



• 1 syringe with 4g available in shades: DA1, DA2, DA3, DA3,5, EA1, EA2, EA3, EB1, E- BLEACH or 2g: DA0, DA4, DA5, VM , VH, Trans OPL, Trans N.



PROCEDURE





Initial. Source: Prof. Dr. Maciel Júnior et al. Final.

EXCELLENT TRANSLUCENT RESULTS



Initial smile.

Source: Prof. Dr. Maciel Júnior et al.



Reconstruction of the incisal contour with Trans OPL.



Final result.



- 1 syringe with 2g in shade Trans N
 4 syringes with 4g in shades: DA1, DA2, DA3, EA1, EA2
 1 bottle with 6ml of Ambar APS

• 1 syringe with 2,5 ml of Condac 37

2 syringes with 4g in shades: DA1, E-Bleach
 3 syringes with 2g in shades: DA0, VH, Trans OPL

· 1 bottle with 6ml of Ambar APS

• 1 syringe with 2,5 ml of Condac 37

• 1 syringe with 2g of Diamond Excel



Knoop Hardness of different composite resins (KHN Averages) (n=5).

Hardness is a mechanical property that is directly related to the resistance of composites. The greater the hardness, the better the resistance. Vittra APS showed a superficial hardness **superior** to all the other materials (One factor ANOVA and Tukey test; p<0.05).

Source: Carvalho E, Gutierrez F, Bauer M, Pailover P, Malaquias P, Reis A, Bauer J, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG) and Universidade Federal do Maranhão (UFMA), 2016.

COMPOSITES

Roughness before and after simulated brushing (Average) (n=10 per experimental condition).

The lower the surface roughness after brushing, the greater the integrity, longevity and shine of the restoration will be. Vittra APS was the **only** one not to show an increase in surface roughness after simulated brushing.

Source: Carvalho E, Gutierrez F, Bauer M, Pailover P, Malaquias P, Reis A, Bauer J, Laguercio A. Universidade Estadual de Ponta Grossa (UEPG) and Universidade Federal do Maranhão (UFMA), 2016.


Optical properties - ΔE , after polimerization

Delta E indicates the magnitude of the color difference. The lower the delta E, the lower the visual perception of the professional in relation to the color difference of the composites before and after light-curing. Vittra APS showed the **lowest** change in color, even **lower** than premium composites such as Estelite Quick and Filtek Z350XT (One-factor ANOVA and Tukey test; p<0.05).

Average (ΔE) color before and immediately after light-curing (n=3 under experimental conditions).

Source: Malaquias P, Carvalho E, Gutierrez F, Bauer M, Pailover P, Reis A, Bauer J, Laguercio A. Universidade Estadual de Ponta Grossa (UEPG) e Universidade Federal do Maranhão (UFMA), 2016.





This differential scanning calorimetry essay (DSC) was carried out with the sample exposed to a light source with intensity of 10,000 LUX, similar to the light emitted by common dental chair reflector. Therefore, this study represents the amount of time the dentist can work with the resin with the reflector's light directed to the composite. It is noticeable in the DSC chart that the APS system provides for the Vittra APS resin a longer working time (approx. 8 minutes) when compared to the competitors with conventional initiating systems. The less inclined curve of the Vittra APS composite indicates also that its polymerization reaction is less intense than that of other products, confirming its lower sensitivity to light exposure.



GET TO KNOW THE NEW TRANS OPL AESTHETICS ALLIED TO RESISTANCE.

One year after the introduction of Vittra APS and an intense improvement in the line, FGM introduces the new Trans OPL shade. The shade was developed with the purpose of establishing the aesthetic of the incisal of anterior teeth for offering opalescence and translucency, characteristics that are compatible to natural characteristics of that area. The new version is even more translucent and has a spectacular opalescence optical effect. Still, and as important, there was a significant increase in the mechanical properties making the composite able to support masticatory forces and excursive movements without over wearing, contributing for the maintenance of the beauty and longevity of the restoration. See below the results of the studies carried out with the new Trans OPL compared to the competition:



Bending forces occur during mastication and may lead to failure due to its cyclic character. That is why it is so important to balance mechanical properties of restorative composites. Trans OPL composite shows excellent level of bending resistance.

Reflects a property that is intrinsic to the material: to resist pressures delivered by masticatory forces.

80 60 40 20 0 Vittra Vittra Trans Empress Vit-L-Essence Renamel Irb LI

Vickers micro-hardness

The hardness of a material should be balanced with its other haracteristics. The higher the hardness, the greater the resistance to abrasion to be expected from the material.



400 300 200 100 0 Vittra Vittra Trans Empress Vit-L-Essence Renamel Irb LI

Resistance to compression (MPa)

Compression is a force that occurs with high frequency in dental materials during the masticatory cycle and has a direct influence in the longevity of the restoration. Results indicate that the Trans OPL shows greater resistance than the competition.



The chart shows that the Trans OPL is the most translucent when compared to its competitors. It is ideal for the incisal contour effect.



 ΔE , after curing

Indicates the magnitude of the total color difference between before and after curing. The lower the delta, the lower the visual perception by the professional before and after curing.





OPUS BULK FILL APS

Light-curing resin composite with low shrinkage stress.

TOCS BULL

DESCRIPTION | INDICATIONS

Opus Bulk Fill APS is a bulk-fill composite for class I and II direct restorations on posterior teeth. Allows big increments (up to 5mm).

Applicability: dentistry, endodontics , pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

"APJ

- Longer working time even under reflector's light;
- Increased mechanical properties;
- Low shrinkage stress;
- High cure depth;

- Allows up to 5mm thick increments;
- No need for capping layer, allows complete filing of the cavity;
- Available in 3 different shades.



• 1 syringe with 4g available in shades: A1, A2 or A3 • Applicator tips



PROCEDURE



Initial case.





Acid etching of enamel and dentin.



Adhesive application and light curing.







Reconstruction of the proximal wall.

First restoration finished and Finished case. second one to be finished.

Source: Prof. Dr. Dayse Lúcia Otero Amaral.

Shrinkage stress (MPa) of different bulk-fill composites,



Note that Opus Bulk Fill (FGM) has a stress level equivalent to its main competitors, ensuring its capability to be used in large increments. Source: FGM.



Compressive strenght (MPa) of different bulk-fill composites,



The chart reveals that Opus Bulk Fill presented high level of compressive strength, one of the highest among its competitors. Source: FGM.

Cure depth (ISO 4049:2009). Vickers microhardness (HV) in various depths (mm) of different bulk-fill composites.

Note constancy of microhardness in different depths, ensuring the capability to light cure large increments safely.

Source: FGM.



OPUS BULK FILL FLOW APS

Flowable light-curing resin composite with low shrinkage stress.

DESCRIPTION | INDICATIONS

Opus Bulk Fill Flow APS is a flowable bulk-fill composite for use as base for class I and II direct restorations on posterior teeth. Allows big increments (up to 4mm).

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

"APJ

- Longer working time even under reflector's light;
- Increased mechanical properties;
- Low shrinkage stress;
- High cure depth;
- Allows up to 4mm thick increments;

- Self-leveling and anti-gravity characteristics for easy application;
- Adapts easily to irregular cavities;
- Available in 3 different shades.



COMPOSITES

PROCEDURE



Initial case.





Cavity showing great amount of carious tissue and the carious tissue removed.



After acid etching of dentin and enamel, application of Ambar.



Filling of the cavity with Opus Bulk Fill Flow, leaving 2mm of occlusal space for posterior restoration with nanohybrid composite of regular viscosity.





Increments with Opallis carried out on the occlusal surface. Prof. Dr. Fabio Sene.

Restoration concluded.

Shrinkage stress (MPa) of different flowable bulk-fill composites,



Note that Opus Bulk Fill Flow (FGM) has one of the lowest stress levels, what supports the bulk-filling capability. Source: FGM.

Compressive strength (MPa) of different flowable bulk-fill composites



The chart reveals that Opus Bulk Fill Flow presented high level of strength, similar or better than its competitors. Source: FGM.



Cure depth (ISO 4049:2009): Vickers microhardness (HV) in various depths (mm) of different flowable bulk-fill composites.

Note constancy of microhardness in different depths, ensuring the capability to light cure big increments safely.

Source: FGM.

COMPOSITES

OPALLIS

Light-curing resin composite.

DESCRIPTION | INDICATIONS

Opallis APS is a light-curing resin composite for class I, II, III, IV, V and VI direct restorations on anterior and posterior teeth as well as reanatomization of tooth structure. In some cases, it can be used to repair small portions of ceramic prosthetic pieces.

SCHO

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Load particles of glass of barium-aluminium-silicate;
- Average load size of 0.5 μm;
- Manufactured with Schott glass;
- ♦ Low polymerization shrinkage; ^{49,50,51,52}
- High wear resistance^{50,53}, flexural strength^{50,54}, compressive strength⁵⁴, diametral tensile strength; ⁵⁴
- Excellent clinical performance; 55
- ♦ Fluorescence similar to dental structure; ⁵⁶
- Opalescence similar to dental structure;
- Radiopacity: easy radiographic follow-up of restorations;
- Excellent viscosity: refined handling. Softer and with higher rheological stability, along with its easy carving characteristics;

- Excellent polishing capacity: load distribution in enamel and effect shades leads to superior polishing and shine;
- Versatile: the wide range of available shades enables resolution from simple to complex cases;
- Four degrees of translucence available: elevated translucence (effect shades), medium translucence (enamel), low translucence (dentin) and extra opaque;
- In addition to following VITA® Classical shades, it also has its own shade guide, which is manufactured with the composite itself, providing a 3D perspective to simplify the stratification technique;
- Special shades for pediatric dentistry: A0,5, B0,5, OW, which allows superior reproduction of opacity and shade of deciduous teeth;
- Specific shades for whitened teeth: E-Bleach L, E-Bleach H, E-Bleach M, D-Bleach which allows restoration of whiter teeth;



1 syringe with: 4g for regular shades and 2g for special shades

• 20 caps of 0.2g

6 syringes in shades: EA2, EA3, EA3.5, DA2, DA3 and T-Neutral



PROCEDURE







Initial aspect.

Acid etching.

Adhesive application.







Opallis increments.

Opallis increments.







Polishing with Diamond Flex (FGM).

Concluded case.

Source: Prof. Dr. Rogerio Marcondes, Prof. Dr. Henrique de Castro and Prof. Dr. Souza Pires.



8 syringes with 4g in shades: EA1, EA2, EA3, EB2, DA1, DA2, DA3 and DB2
7 syringes with 2g in shades: D-Bleach, T-Blue, T-Neutral, T-Yellow, -Bleach H, Opaque Pearl and VH
1 bottle with 4ml of Ambar



· Kit with 35 pieces manufactured with Opallis composite

45

Translucence level	Translucence %	Application	Available shades
High translucence	70 - 80	Effect - enamel	T-blue, T-yellow, T-orange, T-neutral, VH, VM, VL
Medium translucence	55 - 56	Enamel	EA1, EA2, EA3, EA3.5, EA4, EB1, EB2, EB3, EC2, EC3, E-Bleach H (high), E-Bleach M (medium), E-Bleach L (low)
Opaque	41 - 44	Dentin	DA1, DA2, DA3, DA3.5, DA4, DB1, DB2, DB3, DC2, DC3, D-Bleach M
High opacity	35-33	Effect - dentin	Opaque Pearl (OP), Opaque White (OW), A0.5, B0.5

Polymerization shrinkage (in %) of different composites (Archimedes methodolody).



Note that Opallis showed equivalent or better values than the competitors.

Source: Lohbauer, U.; Frankenberger, R. Werkstoffkundliche Standortbestimmung eines neuen biomimetischen Füllungskomposits. Das Deutsche Zahnärzteblatt, v. 118, n. 3, p. 76-84, 2009.





Flexural strength (4BP: 4 bending points) and fatigue strength (FS) of different composites.

Source: Lohbauer, U.; Frankenberger, R. Werkstoffkundliche Standortbestimmung eines neuen biomimetischen Füllungskomposits. Das Deutsche Zahnärzteblatt, v. 118, n. 3, p. 76-84, 2009.

Roughness (µm) of different composites specimens before and after polishing.

Data shows that Opallis is capable of excellent polishing due to its adequate load particle distribution and size.

Mean values and standard deviation of the RA(μ m) values obtained from different resin test specimens, according to the polishing period. The graphic shows the absolute values (μ m) on top of each collum and the standard deviation between parenthesis.



Source: Silva, J.M.F.; Rocha, D.M.; Travassos, A.C.; Fernandes Jr, V.V.B.; Rodrigues, J.R. Effect of different finishing times on surface roughness and maintenance of polish in nanoparticle and microhybrid composite resins. The European Journal of Esthetic Dentistry, v. 5, n. 3, p. 288-298, 2010.



Light-curing flowable resin composite.

DESCRIPTION | INDICATIONS

Opallis Flow APS is a flowable composite for use as base for class I and II direct restoration on posterior teeth. Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

COMPOSITES

- Manufactured with Schott glass;
- High percentage of filler content: 72%;
- ♦ High shade stability; ⁵⁷
- Also recommended as cavity liner;

- Polymerization shrinkage similar to conventional composites;
- Excellent viscosity: easy application and adequate leveling in cavities.

Resin materials submitted to accelerated ageing to verify shade alteration (ΔE). An alteration lower than $\Delta E=3$ shall not be noticed by bare eyes.

	RelyX ARC	ΔE 2.40 (0.05) a	
Dual-curing resin cements	Allcem	2.23 (0.35) a	
	Variolink II	0.98 (0.20) b	
	RelyX Veneer	0.57 (0.08) c	
Light-curing resin cements	Exp Veneer	0.58 (0.07) c	
	Variolink Veneer	0.41 (0.04) d	
	Filtek Z350 Flow	0.41 (0.03) d	
Flowable composites	Opallis Flow	0.83 (0.03) b	
	Tetric Flow	0.41 (0.05) d	

Source: Archegas, L.R., Freire, A., Vieira, S., Caldas, D.B., Souza, E.M. Colour stability and opacity of resin cements and flowable composities for ceramic veneer luting after accelerated ageing. J Dent, v. 39, n. 11, p. 804-810, 2011.



1 syringe with 2g available in shades: A1, A2, A3 (universal), T (translucent), (OP, A 0.5, B 0.5) and OA 3.5 (Extra Opaque). Applicator tips



DESCRIPTION | INDICATIONS

Llis is a light-curing resin composite for class I, II, III, IV, V and VI direct restorations on anterior and posterior teeth as well as reanatomization of tooth structure. In some cases, it can be used to repair small portions of ceramic prosthetic pieces.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Load particles of glass of barium-alumino-silicate;
- Average load size of 0.8 μm;
- Manufactured with Schott glass;
- Simplified shade system, offering enamel, dentin and incisal shades;
- Enamel and dentin shades follow accurately the VITA[®] Classical shade guide;
- Excellent radiopacity: easy radiographic follow up of restorations;

- Excellent viscosity: easy to use;
- Fluorescence and opalescence compatible to dental structure;
- High conversion degree, which guarantees shade stability and mechanical properties for restorations;
- Ergonomic syringe: the lid is attached to the syringe body;
- Mechanical properties meet the requirements for anterior and posterior restorations.



• 1 syringes with 4g in shades: Enamel - EA1, EA2, EA3, EA3.5, EA4, EB1, EB2, EB3, EC2, EC3 and Incisal or Dentin - DA1, DA2, DA3 (Universal), DA3.5, and DB2



- 5 syringes with 4g in shades: EA2, EA3, EA3.5, EB2 and DA3 - 1 bottle of Ambar with 4g $\,$

*This kit may vary in presentations. Consult your salesman.



PROCEDURE



Source: Dr. Silvio José Maure and Dr. Lucas Silveira Machado.







Initial appearence.

Proximal walls concluded.

Enamel increments.

Concluded restoration.



CONVERSION DEGREE

The conversion degree reflects the number of monomers that turn into polymers after the polymerization process. The higher the number, the better the mechanical and chemical properties of the material.

Source: FGM (Groups of similar letters do not represent significant statistical difference (p<0,05)).



COMPRESSIVE STRENGTH

Llis shows high compressive strength, which allows its application to posterior teeth restorations as well.

Source: FGM (Groups of similar letters do not represent significant statistical difference, p<0,05).



LABORATORY & CAD/CAM



blocks for CAD/CAM.

DESCRIPTION | INDICATIONS

Brava Block is a glass-ceramic composite block for indirect permanent restorations such as inlays, onlays, veneers and total unitary crowns.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- High conversion degree.
- Excellent polishing and shine.
- ♦ High wear resistance.
- Easy to repair with composites if needed.
- Capable of characterization with pigments.
- Fast and practical milling process.
- Comfortable during masticatory function due to adequate elastic modulus.
- Available in 12 shades and two opacity levels.



 Kit with 5 units (5X7g=35g) in shades: Low Translucency A1-LT, A2-LT, A3-LT, A3,5-LT, B1-LT, C2-LT, D2-LT, Bleach and/y High Translucency A1-HT, A2-HT, A3-3T, B1-HT. Available in sizes: 12L and 14L.





PROCEDURE





After endodontic treatment, a core was built up with the resin cement Allcem Core. The tooth was prepared maintaining the borders flat and at least 1mm thick. In the central part, a boxshaped preparation was made measuring approximately 5x4x3mm to promote the retention and stability of the prosthetic piece.



Molding of the preparation with addition silicone followed by the confection of the temporary restoration. The molds were sent to the laboratory for the confection of the models in special plaster of Paris Esthec Basic 300 (Dentona), scanning was carried out in Map 400, drawing in Ceramil Mind and milling in Motion 2 through the CAD/ CAM system (Amann Girrbach).



With the piece ready, proximal and occlusal contacts, as well as marginal adaptation, were checked. Then, the absolute isolation was installed, cleaning of the dental structure with pumice stone (SS White) and mini Robson brush.



Acid etching of the enamel margins for 30 seconds with phosphoric acid at 37%, application of universal adhesive (Ambar Universal) and light curing for 20 seconds.



The piece was blasted with aluminum oxide in its internal portion, and then phosphoric acid was applied for cleaning. Note the porous and matte aspect after the application. With the piece dried, silane (Prosil) and also universal adhesive (Ambar Universal) were applied.









was light cured for 20 sec.



The occlusal contacts are checked and the piece was polished.

Source: Prof. Dr. Denis Roberto Falcão Spina, Prof. Dr. Cesar Henrique Tognetti Alves and Prof. Dr. Rogério Goulart da Costa

LABORATORY & CAD/CAM

PIECE MILLING PROCESS, CHARACTERIZATION, FINISHING AND POLISHING

MILLING OF THE PIECE:

Chose block model according to the size of the restoration to be created. The milling of the block must be done with diamond drills in the water-refrigerated process.



Fig. A. Start of the milling process of a total crown. Fig. B. Aspect of the block after milling process.



The Brava Block crowns can be characterized by light-curing dyes. In order to do that, follow the steps:



you must make the region that is to receive the dyers rough. Make sure you do not cause significant wear; otherwise, it can harm the mechanical resistance of the Fig. D. Apply universal adhesive (e.g.: Ambar Universal) on the rough region, using light friction for 10 seconds.t



Fig. E. Gently apply air jets for 10 seconds to make the adhesive layer uniform and evaporate the solvent. The adhesive must then be light cured for 10 seconds.



Figs. F and G. Apply the dye in the desired region and light cure it according to manufacturer's instructions.



Figs. H and I. Finishing of the piece in different faces with different instruments Fig. J. Polishing with felt disk and polishing paste. Fig. L. Aspect of the piece after polishing.

FINISHING AND POLISHING:

Before cementing, the pieces must be finished and polished. For the occlusal face, it is suggested the use of thin and extra-thin abrasive rubbers, as well as slightly abrasive occlusal brushes (permeated with silicon carbide). For the free faces, thin and extra-thin diamond disks (Diamond Pro) can be used.

LABORATORY & CAD/CAM

PHYSICOCHEMICAL PROPERTIES AND PERFORMANCE

Brava Block was developed to offer long-lasting restorations. Some of the system's most important properties are described as follows:

Adhesive Resistance (MPa) 30 A 25 20 15 10 5 0 Brava Block Lava Utimate (FGM) (3M ESPE)

1.1. Mean value and standard deviation (MPa) of Lava Ultimate and Brava Block micro-cutting bond resistance (3M ESPE) (n=5 per experimental condition)

Resistance to tracture (IN)



Resistance to fracture mean value and standard deviation (n=15 per experimental condition (*)

(*) Same letters indicate statistical similarity in each line (ANOVA OF 3 factor and

Turkey test; p<0.05) Source: Hilgenberg B, Cardenas A, Siqueira F, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG).

BRAVA BLOCK (FGM):

2 irreparable fractures. 3 reparable fractures.

Lava Ultimate (3M ESPE): 14 irreparable fractures.

1 reparable fractures.



Resistance to bending (MPa)

Resistance to bending mean value and standard deviation (n=10 per experimental condition) (*) (*) Same letters indicate statistical similarity in each line (ANOVA OF 3 factor and Turkey test; p<0.05) Source: Hilgenberg B, Cardenas A, Siqueira F, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG). LABORATORY & CAD/CAM

CEMENTATION

ADHESIVE PREPARATION OF THE PIECE

The cementation process of Brava Block made parts follows a simple adhesive protocol that provides high adhesion levels:

1ST STEP

Blasting of the internal side of the pieces by using aluminum of up to 50 micrometers, with a pressure of up to 3 bar until the surface is matte.



Jbs.: alternatively, the piece can be etched with hydrofluoric acid for 60 seconds; however, the adhesive result will be inferior.

Fig. A. Piece blasted on its internal part, to increase roughness, maximizing cement retention.

2ND STEP

Proceed to washing the pieces in ultrasonic vat for 180 seconds.



Fig. B. Washing of the piece to remove abrasive residue.

3RD STEP

Apply alcohol 70% and dry the surface for 30 seconds.



Fig. C. Alcohol-embedded cotton application.

4[™] STEP

Apply silane with MDP (preferably) and let it react for 60 seconds. Remove excess with air jets.



Fig. D. Silane must be distributed all over the internal part, including borders.



$5^{TH} STEP$

Apply adhesive with MDP (e.g.: Ambar Universal or Ambar) for 30 seconds and then apply air jets for 10 seconds to volatize the solvent and make the thickness of the layer uniform.

Figs. E and F. Just like the silane, the adhesive must be applied under soft friction all on the internal side of the part. Then, slightly apply air jets to make the adhesive layer uniform. The adhesive should not be cured, avoiding maladaptation of the piece.





Obs.: the use of self-adhesive cements is not recommended for cementing Brava Block.

$6^{TH} STEP$

Apply the dual resinous cement (e.g.: Allcem Core or Allcem) and place the piece on the tooth. Remove excesses and light cure the borders for 60 seconds. Wait 7 to 10 minutes untouched in order to the chemical healing of the cement to happen.

Fig. G. Dual resinous cement is applied in the interior of the piece, which is ready for cemetation on the tooth.

TOOTH ADHESIVE PREPARATION

In order to receive the piece, one must perform the tooth adhesive preparation, which, comprises dentin and enamel acid etching and adhesive application. In the case self-etching adhesive, the acid etching is dispensable. In case of the tooth, unlike what happens in the internal side of the piece, the adhesive layer must be light cured.



OPALLIS LAB

Light-curing microhybrid resin composite for indirect restorations.

DESCRIPTION | INDICATIONS

Opallis LAB APS is a ligth-curing resin composite made for indirect restorations such as single-unit total crowns (applied to metal infrastructure or not) and bridges (applied over metal infrastructure), inlays, onlays and veneers.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- Ease in sculpting;
- Low dispersion layer rate;
- High mechanical strength and wear resistance;
- Ease in finishing;

- Excellent polishing;
- Shade stability;
- The shades follow the Opallis and VITA[®] Classical shade guides with accuracy;
- Natural aesthetics.



 1 syringe with 4g available in shades: EA1, EA2, EA3, EA3,5, EB1, EB2, EC2, DA1, DA2, DA3, DA3,5, DB1, DB2, DC2, T-neutral

• 1 syringe with 2g available in shades: Opaque A, B and C

PROCEDURE



After caries removal, self-etching adhesive Ambar Universal (FGM) was applied, followed by Opus Bulk Fill Flow (FGM) composite to regularize the cavity.



Pieces and teeth were etched with phosphoric acid at 37% (Condac 37, FGM) and received application of Ambar Universal (FGM).

Source: Prof. Dr. Raphael Monte Alto and Prof. Dr. Monique Solon de Melo.

Restorations made with Opallis LAB (FGM) in the laboratory.



Pieces were cemented to the preparation with Allcem Core (FGM) and the set was light-cured for 40 seconds. Final appearance.

CEMENTS



DESCRIPTION | INDICATIONS

Allcem Core is a dual-curing resin cement that can fulfill 3 purposes in 1 product due to its high strength and specific viscosity. The cement allows cementation of posts and pieces and also enables core build-ups.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- Excellent viscosity: balanced flow allows core build-up and cementation of posts and crowns with ease;
- Dual curing: chemical curing in environments where light does not reach and light curing to facilitate the core build-up work;
- Radiopaque: enables radiographic monitoring and inspection of eventual subgingival excesses;
- High resistance to bending and compression;
- Applicator tips: the product is applied evenly inside the canal, avoiding manual mixing and insertion with a Lentulo spiral;
- Aesthetics: available in colors A1, A2, A3 or Opaque Pearl to meet different aesthetic demands.



1 dual-body syringe with 6g for shades A1, A2, A3 and Opaque Pearl.
8 self-mixing nozzles

10 self-mixing nozzles

PROCEDURE



Largely destructed teeth showing need for post reinforcement.



After conduit preparation, acid etching (Condac 37, FGM) was performed for 15 seconds.





Fiberglass post cementation.



Core build-up. Source: Dr. Sanzio Marques.

Concluded cores.





Total crown cementation.



Concluded case after chemical curing.

Materiais	Allcem Core	Luxa Core	Opallis
	(FGM)	(DMG)	(FGM)
Média e	148,9	158,7	128,3
desvio-padrão	± 12,5	± 13,2	± 14,1
(MPa)	a	a	a

Flexural strength of resin cements compared to composites

Source: Muñoz M, Luque-Martinez I, Szesz A, Cuadros J, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG), 2013.

Conversion degree of resin cements and composites

Matoriais	Allcem Core (FGM)			Luxa Core (DMG)			Opallis (FGM)
waterials	Foto	Dual	Químico	Foto	Dual	Químico	Foto
Média e desvio-padrão (%)	78,1 ± 3,8 b	79,1 ± 4,1 b	79,8 ± 4,5 b	80,4 ± 3,5 b	87,9 ±4,1 a	78,5 ±3,1 b	78,3 ± 2,1 b

Source: Muñoz M, Luque-Martinez I, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG), 2013.

Materiais	Allcem Core	Luxa Core	Opallis
	(FGM)	(DMG)	(FGM)
Média e desvio-padrão (µm)	23 ±1 a	29 ±1 b	133 ±12 c

Thickness (micrometers) of adhesive film of resin cements and composites

Source: Muñoz M, Luque-Martinez I, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG), 2013.



Dual-curing resin cement.

DESCRIPTION | INDICATIONS

Allcem is a dual-curing resin cement for cementation of prosthetic pieces (e.g. crowns, onlays, inlays, posts) made of materials such as ceramics, metal, composite, acrylic resin, fiberglass, carbon, etc.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- Dual-curing mechanism, light and chemically activated, ensuring polymerization of the product even in situations where there is absence of light;
- Radiopaque: adequate visibility for radiographic diagnoses (e.g. excess of cement under gingival tissue);
- Broad application range: suitable for a great variety of materials used as prosthetic pieces;
- Excellent mechanical properties both when light or chemically cured;
- Excellent capacity to prevent microleakage;
- Perfectly compatible to 2-step or 3-step adhesives;

- Excellent viscosity that allows easy application to prosthetic pieces;
- Available in single syringe or double-body syringe with self-mixing nozzles;
- ♦ High adhesive strength to root dentin; ^{58,59,60,61}
- ♦ Adequate dentin sealing capability when cementing posts; ⁶²
- Adequate shade stability; ⁶³
- ♦ High wear resistance; ⁶⁴
- ♦ Low levels of sorption and solubility. ⁶⁵



 1 double-body syringe (base + catalyzer) with 5g for shades A1, A2, A3 and Trans.
 5 self-mixing nozzles

- 1 syringe with for shades A1, A2, A3 and Trans. 2.5g of base paste
- 1 syringe with
 2.5g of catalyzer

PROCEDURE



Prosthetic preparations. Source: Dr. Maciel Jr. Acid etching.

Adhesive application.

Cementation.

Concluded case.

Diametral compressive strength (DCS) (MPa) of different resin cements.



Source: Cartagena, A.F.; Luque, I.; Hass, V.; Campanha, N.H. Diametral and compressive tensile strength of composite resin cements. Dent Res Issue 91 (Spec Iss B): 2745, 2012 (www.dentalresearch.org).



· 20 self-mixing nozzles

Uniaxial compressive strength (UCS) (MPa) of different resin cements.



Photomicrograph showing the adhesive interface formed on radicular dentin (inferior) where Whitepost DC (FGM) was fixed with dual-curing cement (FGM).



The analysis shows adequate sealing of Allcem both on bonding to post and to radicular dentin.

Source: Ballarin A, Lopes GC, Baratieri LN. Bond strengths of resin cements to root canal dentin. J Dent Res 88(Spec Iss A): Abst. # 1832, 2009.

ALLCEM VENEER APS & ALLCEM VENEER TRY-IN

Light-curing resin cement for veneer cementation.

DESCRIPTION | INDICATIONS

Allcem Veneer APS is a light-curing resin cement for cementation of ceramic no-prep or minimal preparation veneers. It contains in its formula the APS, FGM exclusive polymerization system (see page 06), which guarantees a more powerful polymerization with imperceptible color and opacity change before and after light curing. Allcem Veneer Try-in is a color proof paste that mimics the color of the resin cement Allcem Veneer after light curing.

Applicability: dentistry, endodontics, hebiatry, geriodontics and prosthetics.

FEATURES

"APJ

- Shade predictability: very low visual variation of shade and opacity before and after light curing;
- Greater working time even under reflector's light;
- Increased mechanical properties;
- Light curing: allows total control of working time;
- Radiopacity: allows visualization of eventual sub-gingival excess;

ALLCEM VENEER TRY-IN FEATURES

- Has the same shade as the cement so that the selected shade of the paste brings results equivalent to the final cementation;
- Water-soluble: easy removal after rinsing with water;

- Shade stability: the light curing system is practically free from tertiary amine, which is essential only for chemically cured materials and is responsible for long-term shade change;
- Excellent viscosity: brings together a suitable flow with the capacity to maintain the piece in position during cementation (thixotropy);
- Excellent mechanical properties: the cement has 63% of inorganic load (in weight);
- Available in six different colors named according to the VITA Classical and Opallis (FGM) shade guides which enables the execution of all cases;
- Adequate viscosity: ideal for providing the correct positioning of the piece when selecting the color;
- ♦ Flavored: minty flavor that provides a pleasant sensation.





PROCEDURE



teeth's shade and shape.



Teeth preparation to receive veneers.



Silane application (Prosil, FGM) to allow chemical bonding to the cement.

Acid etching of enamel (Condac37, FGM) during 30 seconds.



Use of try-in paste to test the best color for the cement.

Adhesive application (Ambar, FGM).



Cementation of veneers.



Acid etching (Condac Porcelana, FGM) of the internal parts of the veneers.



Concluded work after light curing.

Source: Dr. Maciel Jr.



6 syringes with 2.5g of Allcem Veneer in shades: A1, A2, A3, Trans, Opaque White and E-Bleach M
6 syringes with 2.5g of Allcem Try-in paste in shades: A1, A2, A3, Trans, Opaque White and E-Bleach M
1 syringe with 2.5m l of Condae Porcelana (10% Hydrofluoric Acid) + 3 applicator tips
1 syringe with 2.5m l of Condae Porcelana (10% Hydrofluoric Acid) + 3 applicator tips
1 bottle with 4.5g of Prosil (silane)
1 bottle with 6ml of Ambar APS (adhesive)
100 units of Cavibrush regular (disposable microapplicator)
Applicator tips

*This kit may vary in presentations. Consult your salesman.



• 3 syringes with 2.5g each of Allcem Veneer in shades: A1, Opaque White and Trans.

- · 3 syringes with 2g each of Try-in paste in
- shades: A1, Opaque White and Trans.
- · 1 bottle with 2ml of Ambar APS
- · 10 applicator tips



CEMENTS

Delta E indicates the magnitude of the color difference. The lower the Delta E, the lower the visual perception of the professional in relation to the color of the material before and after light-curing.





ORTHODONTIC PRODUCTS

ORTHOCEM & ORTHOCEM UV TRACE

Light-curing resin cement for orthodontic brackets.

DESCRIPTION | INDICATIONS

Orthocem and Orthocem UV Trace are ligth-curing resin cements for bonding of orthodontic brackets made of polycarbonate, metal and ceramics. Orthocem UV Trace APS contains a fluorescent tracer, which in contact with ultraviolet light, emits an intense blue light, facilitating its removal at the end of the treatment.

Applicability: orthodontics.

FEATURES

- Orthocem UV Trace contains a fluorescent tracer, which facilitates cement removal at the end of the treatment;
- ♦ Adequate bond strength: ^{67,68} avoids adhesive failure and facilitates the removal of the bracket at the end of treatment;
- Adequate viscosity: keeps the brackets in position during cementation;
- ♦ Less chair time⁶⁶ for cementing brackets: primer and bonding agent in the same syringe, which reduces one clinical step (bond application not required);
- ♦ Light-curing mechanism: enables control of the working time when placing the material;
- ♦ Comprehensive application spectrum: cements various types of brackets (polycarbonate, metal or ceramic);
- ♦ High aesthetic quality: resistant to color variations over time and with high translucency;
- Greater practicality: primer and bond in the same syringe, which reduces one clinical step.



1 syringe of cement with 4g

• 1 syringe of Condac 37 with 2.5ml





Acid etch for 30 seconds.



Source: Dr. Bruno Lippmann et al.

Light curing on margins.



Brackets bonded to enamel.

Excess removal and position refinement.



1 syringe of cement with 4g
 1 syringe of Condac 37 with 2.5ml

6-month retention rate of brackets cemented with two bonding systems.



Source: Siqueira, M.R.; Stanislawczuk, R.; Kossatz, S.; Reis, A.; Loguercio, A.D. Avaliação clínica de uma resina autoadesiva para a colagem de bráquetes ortodônticos. Ortodontia SPO, v. 44, n. 5, p. 435-441, 2011.



PROCEDURE



Brackets removal was done with specific pliers.



Source: Dr. Valter Scalco.

Cement remnants were easily Comparison without UV light. identified when UV light was applied on the enamel.



Final appearance.



Time delayed (in seconds) to bond one bracket for each system, considering that Orthocem (FGM) does not require adhesive application (1 step less than competitors).



Shear bond strength (MPa) of different bracket cements when light cured for 20 or 40 seconds.

Source: Teixeira, C.M.; Roya, R.R.; Oliveira, M.T. Influência da variação do tempo de polimerização na resistência de união ao cisalhamento em diferentes cimentos para bráquetes ortodônticos. Rev Bras Odontol, v. 89, n. 2, p. 220-223, jul/dez 2012.

ORTHO BITE

Light-curing resin composite for occlusal build ups and band cementation.

DESCRIPTION | INDICATIONS

Ortho Bite is a light-curing resin composite for temporary dental disocclusion during orthodontic treatments and cementation of orthodontic bands.

Applicability: orthodontics.

FEATURES

- Versatility: due to its balanced viscosity, it allows making occlusal build ups and cementation of orthodontic bands with a single product;
- Self-adhesive formula: no need for prior adhesive application;
- Self-leveling: rheology that allows good leveling and facilitates sculpting;
- Ready to use: it can be applied directly on the band;
- Mechanical resistance and surface smoothness: the product is composed of nanofilled spherical particles which result in excellent mechanical properties and a surface with an extremely low level of friction. These properties provide longevity and collaborate with greater comfort to the patient submitted to disocclusion, enabling slips to occur more efficiently;
- Easy application and removal: three versions of the product are available: blue, pink and colorless (UV Trace). The presence of colorant and UV tracer in the product allows easy removal of cement residues during removal of bands or occlusal stops;
- ◆ Light-curing: provides control of the working time.





PROCEDURES

Cementation of orthodontic bands



The internal surface of the band should be roughened for greater retention. Apply a continuous thin line of Ortho Bite along the entire internal circumference of the band.



After cleaning and acid etching, place the band on the tooth until it reaches the correct position.



Remove excess cement and light cure it for 40 seconds on each side (occlusal and cervical).

Making occlusal build ups



Check where the occlusal contacts are.



After cleaning and acid etching, apply Ortho Bite in increments until the form and size required for disocclusion are achieved. Each increment may be around 2mm thick and light cured for 20 seconds.

Source 1 and 2: FGM.

TOP COMFORT

Light-curing resin for preventing lesions in soft tissues.

DESCRIPTION | INDICATIONS

Top comfort is a light-curing resin that prevents injuries that may be caused by contact between the components of orthodontic devices (brackets, tubes) and soft tissues in the mouth. It is also indicated as a stop to be placed on the orthodontic archwire to quide biomechanics self-ligating systems.

Aplicability: orthodontics.

FEATURES

- Replaces orthodontic wax;
- Ready to use: application direct from the syringe;
- Ideal viscosity to prevent undesired outflow;
- Effective protection: provides a rounded shape to the pointy edges of fixed parts of dental braces that could damage soft tissues in the mouth;
- Long-lasting comfort: resistant resin that is retained on the location where it is applied, enabling recovery from injury;
- Convenience: avoids the need for constant reapplication;

• 1 syringe with 2g 5 applicator tips

Economic: each syringe lasts up to 125 applications;

Top comfort

- Aesthetic: color and translucency that do not significantly interfere in smile aesthetics;
- Simple removal: polymer with balanced strenght that can be removed by breaking it with small pliers;
- Meets the perfect time to an average cycle for a traumatic ulcer healing;
- Preventive and interceptive use against soft tissue injuries;
- Can be applied to orthodontic wires as a substitute for metallic stops, guiding movement on self-ligating systems.

PROCEDURE



Hook causing injury on soft tissues

Product application.





Hook covered. Light curing for 30 seconds.

Translucent aspect.



Product removed with a small plier. The product comes out without damaging the hook.



72
BONDING & ETCHING AGENTS

5th generation light-curing adhesive for enamel and dentin.

DESCRIPTION | INDICATIONS

Ambar APS is a single-bottle adhesive indicated for bonding to enamel and dentin (restoration and cementation).

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

"APJ

- Adhesive has a colorless aspect, not interfering on aesthetic restorations or cementation;
- Higher conversion degree;
- Proven clinical longevity: 94,2% after 18 months; 69
- Excellent clinical performance; 69,70,71
- High bond strength; 72,73,74,75,76,77
- Contains MDP*;
- Low level of nanoleakage; ⁷³
- Adequate marginal sealing; ^{78,79}

- Primer and bond in the same bottle;
- Ethanol-based solvent;
- ♦ Low levels of sorption and solubility; ⁷⁶
- ♦ High conversion degree; ^{73,80}
- Contains treated silica nanoparticles, providing greater stability and resistance to the adhesive film;
- Presents chemical characteristics that guarantee the quality of curing (even in a high humidity environment) and consequent longevity of the adhesive film;
- Easy to apply: adequate viscosity and clinically visible adhesive film,



*MDP is responsible for chemical bonding, increasing adhesive strenght.

PROCEDURE



Note that APS can make the adhesive practically colorless, with minimum interference in the color during restoration or cementation.



DESCRIPTION | INDICATIONS

Ambar APS is a single-bottle adhesive indicated for bonding to enamel and dentin (restoration and cementation).

in 4ml or 6ml

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Proven clinical longevity: 94,2% after 18 months; 69
- Excellent clinical performance; 69,70,71
- High bond strength; 72,73,74,75,76,77
- Contains MDP*;
- ♦ Low level of nanoleakage; ⁷³
- ♦ Adequate marginal sealing; ^{78,79}
- Primer and bond in the same bottle;
- Ethanol-based solvent;

- ♦ Low levels of sorption and solubility; ⁷⁶
- ♦ High conversion degree; ^{73,80}
- Contains treated silica nanoparticles, providing greater stability and resistance to the adhesive film;
- Presents chemical characteristics that guarantee the quality of curing (even in a high humidity environment) and consequent longevity of the adhesive film;
- ♦ Easy to apply: adequate viscosity and clinically visible adhesive film.



*MDP is responsible for chemical bonding, increasing adhesive strenght.

PROCEDURE



Washing and drying.



Adhesive application.



Light curing for 10 seconds. Source: FGM

BONDING & ETCHING AGENTS



Microtensile bond strength¹

Microtensile resin-dentin bond strength (MPa) of different adhesives.



Nanoleakage¹

Ambar shows excellent result in the study of percentage nanoleakage when comparing different adhesives.

HYBRID LAYER²



See the formation of long tags in dentin and the filling even of the anatomosis by the adhesive, showing it's high affinity to dental structure. In figure C, one sees the integrity of the hybrid layer even after cycling, demonstrating how stable the adhesive is.

1 Source: Dr. Alessandro Loguercio and Dra. Alessandra Reis - UEPG-PR - Brazil (Different letters indicate statistical difference (p < 0.05)), 2 Source: Dr. Jorge Perdigão - University of Minnesota - USA.

Images of Scanning Electron Microscopy (SEM) of the hybrid layer formed by Ambar over the human dentin, before (Fig. A and B) and after (Fig. C) thermal cycling (20,000 cycles, 5° C - 55° C).

"Ambar has resulted in an effectively filled hybrid layer."

Dr. Jorge Perdigão (University of Minnesota - USA)



7th generation light-curing adhesive for enamel and dentin.

LAUNCH

APS

DESCRIPTION | INDICATIONS

Ambar Universal APS is a self-etching adhesive indicated for bonding to enamel and dentin (restoration and cementation). The adhesive allows different application modes and can also be used as a primer for metal or ceramics.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES



- Adhesive has a colorless aspect, not interfering on aesthetic restorations or cementation;
- Higher conversion degree;
- ♦ With enhanced MDP*.
- Combination of primer and bond in the same bottle, simplifying the steps;
- High bond strenght in different modes: self-etching, selective-etching on enamel or total-etching;
- It is compatible with dual, self or light-curing resin cements;

- Contains treated silica nanoparticles, providing greater stability and resistance to the adhesive film;
- Indicated as a primer for metals and ceramics;
- Ethanol-based solvent;
- Presents chemical characteristics that guarantee the quality of curing (even in a high humidity environment) and consequent longevity of the adhesive film;
- Balanced solvents and monomers, which confers high affinity for the surface of the moistened and demineralized dentin, contributing to adequate penetration of the adhesive and good formation of the hybrid layer, thus resulting in high adhesive strength and adhesion quality.



1 bottle with 5ml

*MDP is responsible for chemical bonding, increasing adhesive strenght.



AMBAR UNIVERSAL

7th generation light-curing adhesive for enamel and dentin.

DESCRIPTION | INDICATIONS

Ambar Universal APS is a self-etching adhesive indicated for bonding to enamel and dentin (restoration and cementation). The adhesive allows different application modes and can also be used as a primer for metal or ceramics.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

in 4ml or 6ml

FEATURES

- ♦ With enhanced MDP*.
- Combination of primer and bond in the same bottle, simplifying the steps;
- + High bond in different modes: self-etching, selectiveetching on enamel or total-etching;
- ♦ It is compatible with dual, self or light-curing resin cements;
- Contains treated silica nanoparticles, providing greater stability and resistance to the adhesive film;
- Indicated as a primer for metals and ceramics;

- Ethanol-based solvent;
- Presents chemical characteristics that guarantee the quality of curing (even in a high humidity environment) and consequent longevity of the adhesive film;
- Balanced solvents and monomers, which confers high affinity for the surface of the moistened and demineralized dentin, contributing to adequate penetration of the adhesive and good formation of the hybrid layer, thus resulting in high adhesive strength and adhesion quality.



*MDP is responsible for chemical bonding, increasing adhesive strenght.

APPLICATIONS



Application to enamel.





Application to dentin.

Application to metals. Source: FGM.

Application to ceramics (etchable and non-etchable).



BONDING & ETCHING AGENTS

	Application protocol	
Brand	Etching with phosphoric acid	Not etched with phosphoric acid (self-etching)
AMBAR UNIVERSAL (FGM)	43,2 ± 5,3 A	39,7 ± 4,1 A, B
All-Bond Universal (Bisco)	39,3 ± 3,7 A, B	13,4 ± 1,9 D
Prime & Bond Elect (Dentsply)	16,8 ± 2,4 D	18,9 ± 2,6 D
Single Bond Universal (3M ESPE)	35,1 ± 4,6 B, C	32,4 ± 4,5 C

Different letters indicate statistical difference (ANOVA 2 factors and Tukey test; p<0.05). Source: Luque-Martinez I, Munoz M, Hass V, Reis A, Loguercio A. State University of Ponta Grossa (UEPG), 2014.

Brand	Lithium disilicate ceramics*	Zirconium-based ceramics**
AMBAR UNIVERSAL / ALLCEM (FGM)	23,9 ± 5,1 A	20,5 ± 3,7 A
Prime & Bond Elect / Enforce (Dentsply)	27,9 ± 5,9 A	15,7 ± 2,3 B
Single Bond Universal / RelyX ARC (3M ESPE)	25,4 ± 4,6 A	21,8 ± 3,1 A
Control (Primer Zircônia - Kuraray) / Allcem (FGM)		22,1 ± 2,8 A

* Surface previously etched and silanized

** Surface untreated

Different letters indicate statistical difference (ANOVA 2 factors and Tukey test; p<0.05). Source: Gutierrez F, Malaquias P, Cardenas AM, Siqueira F, Munoz M, Luque-Martinez I, Reis A, Loguercio A. State University of Ponta Grossa (UEPG), 2015.

Brand	Metal (CoCr)
AMBAR UNIVERSAL / ALLCEM (FGM)	18,2 ± 2,2 A
Prime & Bond Elect / Enforce (Dentsply)	13,2 ± 3,6 B
Single Bond Universal / RelyX ARC (3M ESPE)	19,4 ± 2,9 A
Control Group (Alloy Primer - Kuraray) / Allcem (FGM)	20,5 ± 3,1 A

Different letters indicate statistical difference (ANOVA 2 factors and Tukey test; p<0.05). Source: Gutierrez F, Malaquias P, Cardenas AM, Siqueira F, Reis A, Loguercio A. State University of Ponta Grossa (UEPG), 2015.

Bond strength of resin composite to dentin

Opallis (FGM) composite bonded to dentin with different adhesives. Ambar Universal has an excellent standard of adhesion to dentin whether using prior acid etching or not (total-etching and self-etching protocol).

Bond strength of adhesive + resin cement to lithium disilicate and zirconium.

Bond strength to ceramic surfaces. The results show that Ambar Universal can be used for bonding lithium disilicate ceramic (associated with a silane) and zirconium (without silane).

Bond strength of adhesive + resin cement to metal surface (CaCr).

Bond strength to metallic surfaces. Ambar Universal has a performance equivalent to the control group (primer for metal) and is recommended for application on metal (CoCr).

Brand		Push-out (MPa)	
	Root thirds	Etched with phosphoric acid	Not etched with phosphoric acid
AMBAR UNIVERSAL / ALLCEM (FGM)	Cervical Medial Apical	13.2 ± 4.1 A 8.9 ± 3.6 B 6.5 ± 2.8 C	10.2 ± 4.0 A 7.6 ± 3.1 B 5.2 ± 2.1 C, D
Prime & Bond Elect / Enforce (Dentsply)	Cervical Medial Apical	7.2 ± 3.0 B, C 6.9 ± 2.1 C 3.9 ± 1.1 D	10.6 ± 3.6 A 7.8 ± 4.2 C 4.2 ± 1.7 D
Single Bond Universal / RelyX ARC (3M ESPE)	Cervical Medial Apical	10.9 ± 3.0 A 7.9 ± 2.7 B 4.3 ± 2.2 D	12.2 ± 2.9 A 8.1 ± 3.3 B 5.3 ± 1.9 C

Different letters indicate statistical difference (ANOVA 2 factors of repeated measures and Tukey test; p<0.05). Source: Zarpellon D, Szesz A, Cuadros-Sanches J, Reis A, Loguercio A. State University of Ponta Grossa (UEPG), 2014.

Bond strength of adhesive + resin cement to the surface of intraradicular dentin.

Bond strength (push-out) between resin cement / adhesive and intraradicular dentin. It is possible to conclude that, although there is a decrease in adhesion in the intraradicular apical third, the bond strength has appropriate values in both etching modes (self-etching or total-etching).

CONDAC 37

Phosphoric acid at 37% for etching of enamel and dentin.

DESCRIPTION | INDICATIONS

Condac 37 is an acid etchant for enamel and dentin to improve adhesion of restorative materials to teeth.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Low viscosity gel with thixotropic property;
- Blue dye, which facilitates its visualization and control during application;
- Affinity with water, allowing easy removal after the etching;
- Does not run off the site where it is applied.



PROCEDURE

6GM



Application of 37% phosphoric acid (Condac 37). Source: Dr Javier Lema.

CONDAC PORCELANA

Hydrofluoric acid at 5% and 10% for etching of porcelain.

DESCRIPTION | INDICATIONS

Condac Porcelana is a low-viscosity gel containing hydrofluoric acid at 5% or 10% for etching of porcelain.

Applicability: dentistry, orthodontics and prothetics.

FEATURES

- Available in the concentrations of 5% and 10%;
- Easy application: gel with thixotropic properties;
- Due to its excellent viscosity, it does not run off the area where it is applied;
- Increase bond strenght of prosthetic pieces.
- Good affinity with water, allowing easy removal after the etching procedure;
- The product has carmine red color (10% concentration) and salmon color (5% concentration) to facilitate its identification during application;



PROCEDURE

ONDING & ETCHING AGENTS



Product applied to the internal surface of a ceramic veneer.

Source: Prof. Dr. Luis Gustavo D'Altoé Garbelotto *et al.*



ampar

amba



Colorless aspect, evident technology.



FIBERGLASS POST



WHITEPOST



Fiberglass post.

DESCRIPTION | INDICATIONS

Whitepost DC and DC-E are fiberglass posts recommended for teeth showing loss of coronal structure, in order to increase restoration retention of strengthen the remaining structure to receive a prosthetic piece. The DC version presents a double-tapered shape while the DC-E version has also a double-tapared shape but with wider cervical diameter, indicated for wider root conduits or teeth with less coronal structure.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

DDECENITATION

- Posts available in 7 sizes to suit every case;
- Specific drills for each post size;
- Double tapered design: excellent adaptation properties, preserving the intraradicular dentin and leading to a better mechanical performance;
- Drills with inactive tip avoiding lateral endodontic perforation;
- ♦ Larger post diameter on the cervical area, providing more resistance to fracture of this area of higher stress;
- ♦ Highly translucent: no interference in aesthetics of restorative materials (e.g. composite, ceramic, etc.);
- Whitepost DC-E shows thicker cervical diameter and the same apical diameter of Whitepost DC, which makes the DC-E version suitable for teeth with larger conduits;

- Pre-treated silanized surface guarantees higher bonding to cement;
- The kit comes with a selection ruler with 1:1 scale posts silhouettes that, when overlapped to radiographs, helps selecting the most indicated post for the case;
- Excellent compatibility to Allcem (FGM) resin cement; ⁹¹
- Post design offers same retention as serrated posts; ⁹²
- Safer than metallic posts;⁹³
- ♦ Elastic modulus similar to dentin⁹⁴, avoiding excess tension on the root;
- Radiopacity: allows radiographic follow ups;
- ♦ High resistance to fracture. 94,95

PRESENTATION	CONTENT		
Kit Intro DC (DC 0.5, DC 1, DC 2, and DC 3)	5 posts of the same size + their respective drill		Whitepost Dr
Kit Intro DC-Е (DC-Е 0.5, DC-Е 1, DC-Е 2)	 5 posts of the same size + their respective drill 		Whitepost pro-
Refill DC (DC 0.5, DC 1, DC 2 and DC 3)	5 posts of the same size.	/	Whitepost Co
Refill DC-E (DC-E 0.5, DC-E 1, and DC-E 2)	• 5 posts of the same size.	/	Whitepost pod



PROCEDURE







Initial preparation of conduct with gates drills.



Conduct preparation with the drill available in the system (Whitepost DC 1), providing an anatomic preparation.









Application of 37% phosphoric acid (Condac 37) on the crown enamel for 30 seconds followed by thoroughly washing.





Drying with absorbing paper.



Ambar was actively applied with Cavibrush on the crown portion as well as intraconduct with light air jets to evaporate the solvent



Adhesive light-curing for 40 seconds.



The post was treated with alcohol previously to silane (Prosil) application on the surface, waiting for 60 seconds for the solvent to evaporate.



Allcem Core selection.



After the adhesive preparation, insertion of the cement into the conduct with the aid of an applicator tip.



Post insertion.



Light-curing for 60 seconds, after the addition of the material for the core build up.





Cemented post ready to be cut under refrigeration.



Preparation of the teeth for total crown.



Concluded preparation.

PRESENTATION

Kit DC (DC 0.5, DC 1, DC 2, DC 3 and DC-E 2)



5 posts of each size (total of 25 posts) + their respective drills + template for post selection.



Kit DC-E (DC 0.5, DC-E 0.5, DC 1, DC-E 1 and DC-E 2)





PERFECT ADAPTATION. To the conduct, to your technique and to you.

The high content of fibers, its compression during the product's manufacture along with the high compatibility of the fibers to the epoxy resin provides White Post with excellent mechanical properties. Its conical shape also contributes for the best mechanical strength because the post has wider diameter on the cervical third, which is the region that suffers the most stress during masticatory function.







DIAMOND MASTER



Complete kit for finishing and polishing of all restorative materials.

DESCRIPTION | INDICATIONS

Diamond Mater is a kit with sandpaper disks, felt disks and polishing paste for fininhing and polishing of restorations.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Diversity of products for a complete finishing procedure;
- Efficiency on the widest range of materials;
- Practicality for the professional;
- Best cost-benefit ratio;
- More shine in polishing of restorations.



- 1 syringe of Diamond Excel polishing paste with 2g
 3 packages of Diamond Pro flexible sandpaper disks with 36 disks (coarse, medium and fine grits)
 1 package of Diamond Flex flexible felts disks with 14 disks
- 1 mandrel for straight handpiece
- ·1 mandrel for contra-angle handpiece

APPLICATION



Finishing and polishing with sandpaper disk Diamond Pro.



Final polishing with Diamond Flex disk and Diamond Excel paste.

Source: Dr. Maciel Júnior et al.

DIAMOND POLISHING PASTES

DESCRIPTION | INDICATIONS

Diamond AC I & II: aluminum oxide-based pastes available in two grits for finishing and pre-polishing of composites, enamel, metals and amalgam.

Diennondete

Diamond R: aluminum oxide-based for polishing composites.

Diamond Excel: micronized diamond-based paste for polishing porcelain, enamel, composites and other restorative materials

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetic.

FEATURES

- The products have medium viscosity and are not affected by heat;
- Pastes with thixotropic effect that facilitates handling;
- Their formula contains specially selected ingredients to support lubrication during polishing;
- Soluble pastes for easy removal;

- Diamond AC I with approximately 80 microns and AC II with approximately with 30 microns;
- Diamond R has extra-fine granulation (6 to 8 microns);
- Diamond Excel has reduced particle size (2 to 4 microns).



APPLICATIONS



Diamons Excel application. Source: FGM.



Diamond R application. Source: Dr. Rogério Luiz Marcondes and Dr. Henrique de Castro e Souza Pires.



Diamond AC I. Source: FGM.



Diamond AC II.



DIAMOND POLISHING DISKS



DESCRIPTION | INDICATIONS

Diamond (felt disks) and Diamond Flex (flexible felt disks) are suitable for polishing of restorative materials and enamel, used along with polishing pastes. Diamond Pro (flexible sandpaper disks) is suitable for shaping, finishing and pre-polishing restorative materials. Disks are available in 4 grits.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetic.

FEATURES

- Quick fit that facilitates coupling to the mandrel;
- Available in 8mm and/or 12mm diameter sizes.
- No metal parts on the disk surface, reducing risk of damage to restorations;
- Diamond and Diamond Flex: flexibility that enables polishing irregular and angled surfaces;
- Diamond Pro: disks available in 4 grits (coarse, medium, fine and extra-fine) for complete finishing and pre-polishing.



- 24 felt disks (8 mm or 12 mm)
 1 mandrel
- Available in individual packaging 8mm or 12mm



 • 24 felt disks (8 mm or 12 mm)
 • 1 mandrel



 26 flexible sandpaper disks according to the desired grit (8 or 12 mm in diameter). Available in four grits: coarse (G), medium (M), fine (F) and extra-fine (XF)
 1 mandrel



 56 flexible sandpaper disks divided into four grits: coarse (G), medium (M), fine (F) and extra-fine (XF) with diameters of 8 and 12 mm
 1 mandrel

APPLICATIONS



Diamond application.

Source: Dr. Bruno Lippmann and Dr. Rafaella Ronchi Zinelli.



Diamond Flex application. Source: Dr. Alonso Julca Rojas and Dr. Rony Hidalgo Lastaunau.



Diamond Pro application. Source: Dr. Maciel Júnior *et al.*

GLASS IONOMERS



ION-Z

Glass ionomer-based dental restorative material.

DESCRIPTION | INDICATIONS

Ion-Z is a glass ionomer-based self-curing material with bactericidal and dentinogenic active ingredients, with induction of dentinal neoformation, for the control of caries.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- High bactericidal capacity;
- Reinforced with Zinc;
- Lower shrinkage during curing and excellent hygroscopic expansion, leading to a better marginal sealing;
- Releases fluoride ions and acts as a rechargeable reservoir of this ion;
- High mechanical strength and chemical adhesion to enamel and dentin;

- Material is fast setting, favoring proper application;
- ♦ High smoothness of the surface: providing greater comfort to the patient and favorable aesthetics;
- Available in 3 colors: A1, A2 and A3;
- Proper viscosity: favors application in cavities;
- Provides excellent biocompatibility.

PROCEDURES



Tooth after partial removal of affected tissue





Material inserted in the cavity.



Finger pressure exerted on the cement in the direction of the cavity walls to avoid the formation of bubbles or gaps.

Source: Prof. Dr. Maciel Júnior and Prof. Dr. Marcelo Ferrarezi de Andrade.



After 4 to 5 minutes, the product is cured and marginal excesses were removed and solid vaseline was applied on its surface.



· 1 Bottle of cement powder with 10g

- ·1 Bottle of polycarboxylic acid with 8g
- ·1Powder scoop
- 1 Mixing pad
 Available in colors A1, A2 and A3

MAXXION R

Glass ionomer restorative cement.

DESCRIPTION | INDICATIONS

Maxxion R is a self-curing restorative glass ionomer cement for definitive (primmary teeth) or temporary restorarions. It can be associated to resin composites and used according to the ART technique.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics and prosthetics.

FEATURES

- Fast cement setting: 3 to 4 minutes, ideal for ART procedures in order to avoid saliva contamination;
- High capacity to remineralize enamel adjacent to restorations, being considered an alternative to avoid secondary caries; ⁸⁵
- Good bond strenght to enamel and dentin;

- Biocompatible;
- ♦ Effective on releasing and recharging fluoride; ⁸⁶
- ♦ Clinically proven performance; 87,88,89
- ♦ High Knoop hardness. 90



• 1 bottle of cement powder with 10g available in colors A2 and A3

- 1 bottle of liquid with 8g
- ·1powder scoop
- 1 mixing pad



1 bottle of liquid with 8g (polyacrilic acid)



GLASS IONOMER

1 bottle of cement powder with 10g
 1 powder scoop

APPLICATION



1:1proportion. Source: FGM. Product viscosity.

GLASS IONOMER

Fluoride release (µg F/cm²) after recharge of two conventional glass ionomers and one resin modified glass ionomer in different times.



Source: Silva, F.D.S.C.M.; Duarte, R.M.; Sampaio, F.C. Liberação e recarga de flúor por cimentos de ionômero de vidro. RGO, v. 58, n. 4, p. 437-443, out/dez 2010.

Knoop Hardness (median and standard deviation) of different glass ionomer cements, verified on different times.



Source: Fragnan, L.N.; Bonini, G.A.V.C.; Politano, G.T.; Camargo, L.B.; Imparato, J.C.P.; Raggio, D.P. Dureza Knoop de Três Cimentos de Ionômero de Vidro. Pesq Bras Odontoped Clin Integr, v. 11, n. 1, p. 73-76, jan/mar 2011.

MAXXION C

Glass ionomer cement for cementation purposes.

DESCRIPTION | INDICATIONS

Maxxion C is a self-curing glass ionomer cement for cementation of prosthetic pieces (full crowns, bridges, inlays, onlays, etc.) and orthodontic bands and devices (e.g. Haas expander). Also for cavity lining.

Applicability; dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics and prosthetics.

FEATURES

- Cementation of prosthetic pieces and orthodontic bands;
- Cavity lining;
- Compatible with all metallic alloys and acrylic resins;
- Low film thickness and high flowability while cementing pieces;
- Self-curing mechanism.
- Adequate mechanical resistance;

- High fluoride release capacity: prevention of secondary caries or marginal infiltration;
- Low water absorption to improve its mechanical and adhesive properties;
- Radiopacity: allows diagnosis and radiographic follow-up;
- Balanced transluscence, which improves aesthetic performance;



- · 1 bottle of cement powder with 15g
- 1 bottle of liquid with 10g
- 1 powder dispenser
- 1 mixing pad



1 bottle of liquid with 10g



GLASS IONOMER

 $\cdot\,1\,\text{bottle}$ of cement powder with 15g

APPLICATION



1:1 proportion.

Product viscosity.



GLASS IONOMER



Fluoride release

In this in vitro test, Maxxion C shows effective fluoride release that can be seen along the time, contributing to the maintenance of tooth integrity.

Source: FGM.



Bond strenght

Maxxion C's high bonding strenght to shear test (metal alloy cemented on bovine dentin).

Source: FGM (Different letter refer to different statistics (p<0,05)).



ACCESSORIES



Flúor Care is a 1,23% fluoride foam for enamel fluoridation for patients with high risk of cavities, post-operatory in periodontal treatment, cases of hypersensitivity, patients wearing braces.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Fluoride foam: does not run off when applied;
- Lasts 8x more than fluoride gel;
- Safety: less risk of ingestion/severe intoxication;
- Safe for kids: lower level of salivary retention after application than gel form; ⁸¹
- ♦ The same remineralizing effect than gel; ⁸²

- Comfortable: does not cause nausea;
- Easy application: 1 minute in contact with teeth (neutral or acidulated fluoride), using wax tray or lip retractor (Arcflex, FGM);
- ♦ 5 flavors: tutti-frutti (neutral), chocolate, strawberry, grape and fresh (acidulated).



1 bottle with 100ml

Available flavors: tutti-frutti, chocolate, fresh, strawberry, and grape

· 15 bottles with 100ml each

PROCEDURE



Foam consistency.

Source: Dr. Gustavo Oliveira dos Santos.

Does not run off.

Product applied with the aid of a lip retractor (Arcflex, FGM).

DUOFLUORID XII



Varnish of sodium fuoride at 6% and calcium fluoride at 6% for topical application.

DESCRIPTION | INDICATIONS

Varnish of sodium fluoride (6%) and calcium fluoride (6%) for treatment of dental hypersensivity, caries prevention in patients with high risk, remineralization of incipient carious lesions.

Applicability: dentistry, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- ♦ Effective on enamel remineralization; ⁸³
- Highly aesthetic: colorless varnish;
- Quick drying: fast application;
- Safe for kids: low toxicity. ⁸⁴





1 bottle with 10ml of solvent

PROCEDURE



Prophylaxys.



Relative isolation.



Product application. Source: Dr. Luiz Felipe Scabar.





DESCRIPTION | INDICATIONS

Prevent is a light-curing resin sealant that helps preventing caries on posterior teeth. By creating a more regular surface, filling pits and fissures, teeth become easier to clean, retaining less residues.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- More filler: the incorporation of 50% filler load (in weight) allows the sealant to increase its resistance to wear, which increases its activity time in the mouth;
- Recharge potential: the ionomer filler in the sealant can recharge and release fluoride;
- Contains fluoride: prevents decay;
- Ready to use: application directly from the syringe, with no need for manipulation.
- Versatility: presented in two versions (tinted or opaque white), varying the color and opacity to better adapt to the case;
- Excellent viscosity: dosed flow to facilitate filling of pits and fissures;
- Effectiveness: the material has excellent wettability, which generates proper sealing capacity;



- 5 syringes of Prevent Sealant with 2g (Tinted or Opaque White)
- Applicator tips
- 1 syringe of Condac 37 with 2.5ml



1 syringe with 2g (Tinted or Opaque White)
 Applicator tips

ACCESSORIES

PROCEDURE









Rubber dam isolation.

Dental prophylaxys.

Acid etch for 30 seconds (Condac 37, FGM). Product application.

Aspect after light curing for 20 seconds.

Source: Dr Lucas Silveira Machado et al. (2013)

RESEARCH AND STUDIES



A

A human extracted molar has received acid etching and Prevent application. Tooth slices were obtained and polarized light showed the product's excellent adaptation to occlusal surface.

Note the tags created by the product into the enamel surface, which reveals the product's wetability and great capacity to flow.

Source: Prof. Renato Herman Sundfeld et al. (2013).



Fluoride release in a period of 11 days, observe higher performance of Prevent (FGM).

Source: FGM.



DESCRIPTION | INDICATIONS

Prosil is a silane agent that promotes chemical bonding between resin cements and the glass content of ceramic, ceromer, laboratorial resins and fiberglass posts.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics and prosthetics.

FEATURES

- High bonding capacity between resin-based cements and fiberglass posts and indirect restorations;
- Promotes bonding between these interfaces due to the high reactivity of silane with methacrylic monomers and surfaces containing inorganic elements;
- Increases up to 30% the adhesive capacity;
- Easy application: ready to use, no previous mixing required and applications are done in just one minute per piece.



APPLICATIONS



Silane application on fiberglass post. Source: Prof. Dr. Luis Gustavo D'Altoé Garbelotto et al.



Silane application on veneer. Source: Prof. Dr. Raphael Monte Alto and Prof. Dr. Monique Solon de Melo.

CAVIBRUSH



Disposable microapplicator.

DESCRIPTION | INDICATIONS

Cavibrush is a disposable microapplicator for solutions such as dental adhesive, silane agent, hemostatic agent, fluoride varnish, desensitizing agents, etc.

Applicability: dentistry, endodontics, pediatric dentistry, hebiatry, geriodontics, orthodontics, periodontics and prosthetics.

FEATURES

- Unique design: makes it easy to use in areas that are hard to reach, in cavity preparations and root canals;
- Two bending points: allows you to achieve angles greater than 180°;
- Variety of models: regular, fine, extra-fine and long;
- Thicker stem: better stability and safety.



Bending points





 Packaging containing 100 units



 Packaging containing 100 units



 Packaging containing 100 units

APPLICATION

100 units



Packaging containing

Intra conduit application. Source: FGM.



Surface application. Source: Dr. Ricardo Takiy (respectively).

"AFTER BRANEMARK'S INVENTION, ARCSYS IS THE GREATEST INNOVATION IN IMPLANTOLOGY."

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Prof. Dr. Ricardo Magini | Specialist, master and doctor in Periodontics BY FOB/USP (SP -Brazil), Head Professor at UFSC (SC - Brazil) and Professor of the Graduate Program in DENTISTRY emphasis in IMPLANTOLOGY at UFSC (SC - Brazil).

WITH ARCSYS, LESS IS MUCH MORE.

LESS STOCK,

Componentes

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MORE FUNCTIONS.

Multifuncionales en PEEK.

When it comes to aesthetic quality, patient's health and surgical planning, there is only one solution: to simplify.

With the Arcsys System, you will be amazed at a number of technologies capable to minimize time-consuming steps, thus reducing time, stock volume and expanding your range of possibilities.

LESS COMPONENTS, MORE POSSIBILITIES.

Abutments for screw- and cement-retained restorations that allow customizing the angulation from 0° to 20°, at the clinic or laboratory.



LESS OF THE USUAL, MORE RESISTANCE. Arcsys Foldable Prosthetic Components are 3x more resistant than the market leaders.³

LESS DEPENDENCE, MORE FREEDOM.

AUSYS

Exclusive Abutment Folding Device that allows customizing the angulation of prosthetic components at the clinic or laboratory.



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LESS STEPS, MORE TIME GAIN. Drills with potential for single perforation without scaling.¹

LESS TENSION, MORE STABILITY. More resistance, no risk of fracture (absense of passing screw).^{3, 4, 5, 6}

> LESS COMPLICATION, MORE AESTHETICS AND SAFETY. Trilobular implant driver connection with anti-locking system.²





Biphasic calcium phosphate-based synthetic bone replacement material (60% hydroxylapatite and 40% B-tricalcium phosphate) with scientifically-proven and superior results compared to the market leaders.¹²





DROP-BY-DROP HYDRATION Only 5 to 8 drops of water, saline solution or blood are required per 0.25g portion of Nanosynt.



HIGH POROSITY (80% TO 90%) Favors vascularization, osteoblast migration, and bone deposition.



EXCELLENT MANIPULATION

Simple and safe mixing with sterile saline solution, blood or autogenous bone, filling the bone defect with ease.



OSTEOCONDUCTIVE

Excellent steoconductive structure that allows for vascularization and cell deposition.



PRACTICALITY

Available in fractionated form (4 or 2 ampules with 0.25g). Avoids waste.

"Nanosynt is a synthetic and safe material with superior quality of bone formation that definitely came to meet the needs of the dentist."

Prof. João Zielack - Curitiba/PR - Brazil





¹Uzeda, M. J., de Brito Resende, R. F., Sartoretto, S. C., Alves, A. T. N. N., Granjeiro, J. M., & Calasans-Maia, M. D. Randomized clinical trial for the biological evaluation of two nanostructured biphasic calcium phosphate biomaterials as a bone substitute. Clinical Implant Dentistry and Related Research. |¹Freitas G. Tovar N. Granato R. Marin C. Coelho PG. NanoSynt: Avaliação histológica e histomorfométrice de um novo substituto ósseo. O uso da nanotecnologia na conquista de um melhor padrão de osteocondução. ImplantNews. 2014;11(3):296–301.



FGM Dental Products

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