APS

ADVANCED POLYMERIZATION SYSTEM

FGM DENTAL GROUP

25 YEARS

Technology

APS ADVANCED POLYMERIZATION SYSTEM

FGM's unique technology consists of a combination of different photoinitiators that interact with each other and amplify the polymerization capacity of light emitted by the light-curing devices.

One of these photoinitiators remains the camphorquinone (in very low concentration), used only to initiate a chain reaction with free radical multiplication as sequential propagation occurs.

That way, 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.

ESTHETIC

Due to the transparency of most APS photoinitiators it was possible to develop polymeric materials with high esthetic performance, neutralizing the yellowish color of the camphorquinone. For example: premium composite **Vittra APS** and **Allcem Veneer APS** cement do not demonstrate significant variation in shade before and after light curing. In the chameleon composite **Vittra APS Unique**, these photoinitiators that are more transparent make the chromatic mirroring easier and make it possible to achieve perfect mimicry. In the case of **Ambar APS** and **Ambar Universal APS**, their colorless appearance makes it all the difference in the cementation of veneers and no-prep veneers.

LONGER WORKING TIME

Materials containing the APS system have 4 times less sensitivity to ambient light when compared to traditional ones. The possibility of performing esthetic restorations with **Vittra APS** is real, as well as having enough time to insert and sculpt a restoration with **Opus Bulk Fill APS** at once. It is also possible to simultaneously position and cement veneers with **Allcem Veneer APS**. And all that with the reflector's light on!

CURING DEPTH

One of the important qualities of APS is that it provides better conversion of monomers to polymers even at great depths. This property is of great importance for all photoactivated composites but especially for **Opus Bulk Fill APS** and **Opus Bulk Fill Flow APS,** which are inserted in large increments, ensuring clinical longevity for restorations.

MECHANICAL PROPERTIES

As the polymerization depth is increased due to the higher conversion degree of monomers to polymers, consequently there is a better polymerization of the whole chain. This generates a significant increase in all mechanical properties such as flexural strength and resistance to fracture.

GET TO KNOW THE PRODUCTS WHICH CONTAIN **THE APS TECHNOLOGY.**

Universal chroma composite with capacity to match the tooth shade. From Bleach to D4 with a single composite. It is also BPA free.

p.04

Premium composite with loads of spheroidal zirconium silicate. It offers high potential for polishing and shine longevity, besides being BPA free.

p.10

Light-curing adhesives with MDP with high strength and adhesive longevity. They are also BPA free.

p.22

Light-curing resin composite for prep and no-prep veneers. Excellent shade stability and esthetic longevity.

p.28

Low shrinkage composites for large increments. Faster restorations with the same longevity.

p.30

ONE SHADE FOR ALL SHADES

Technology APS ADVANCED POLYMERIZATION SYSTEM

- Shade transmission facilitated due to the low concentration of camphorquinone in the composition: the APS system uses more transparent photoinitiators;
- Amplified polymerization capacity;
- Longer working time under the reflector's/ambient light;
- Increased mechanical properties;

REAL CHAMELEON EFFECT

- **Chameleon effect:** Due its characteristics of chromatic mirroring, the composite captures and reflects the shade of the dental substrate during the polymerization process. The load, well-dosed opacity and esthetics of the APS system are fundamental to reach the perfect mimicry;
- **High esthetics and mechanical resistence:** Besides excellent shine and polishing, it has high rates of flexural strenght and fracture resistance to withstand the stress resulting from masticatory forces.

COMPOSITE FOR ALL THE SHADES

FROM BLEACH TO D4
FOR ANTERIOR AND POSTERIOR TEETH

- **Universal chroma:** From Bleach to D4 with only one shade! It does not require layering in most cases and enables the adoption of a simple incremental technique, without using different degress of opacity/translucency;
- **Practicality and economy:** It does not require shade selection and, therefore, allows for faster restorative procedures, increases the professional's productivity and reduces the stock of the shades.

BPA FREE

- BPA free composite and syringe.

UNIVERSAL CHROMA Composite

THE REAL CHAMELEON EFFECT

The optical properties of Vittra APS Unique define themselves after its polymerization. The chameleon effect occurs due to the chromatic mirroring characteristics of the composite, which is capable of capturing and reflecting the shade of the dental substrate.

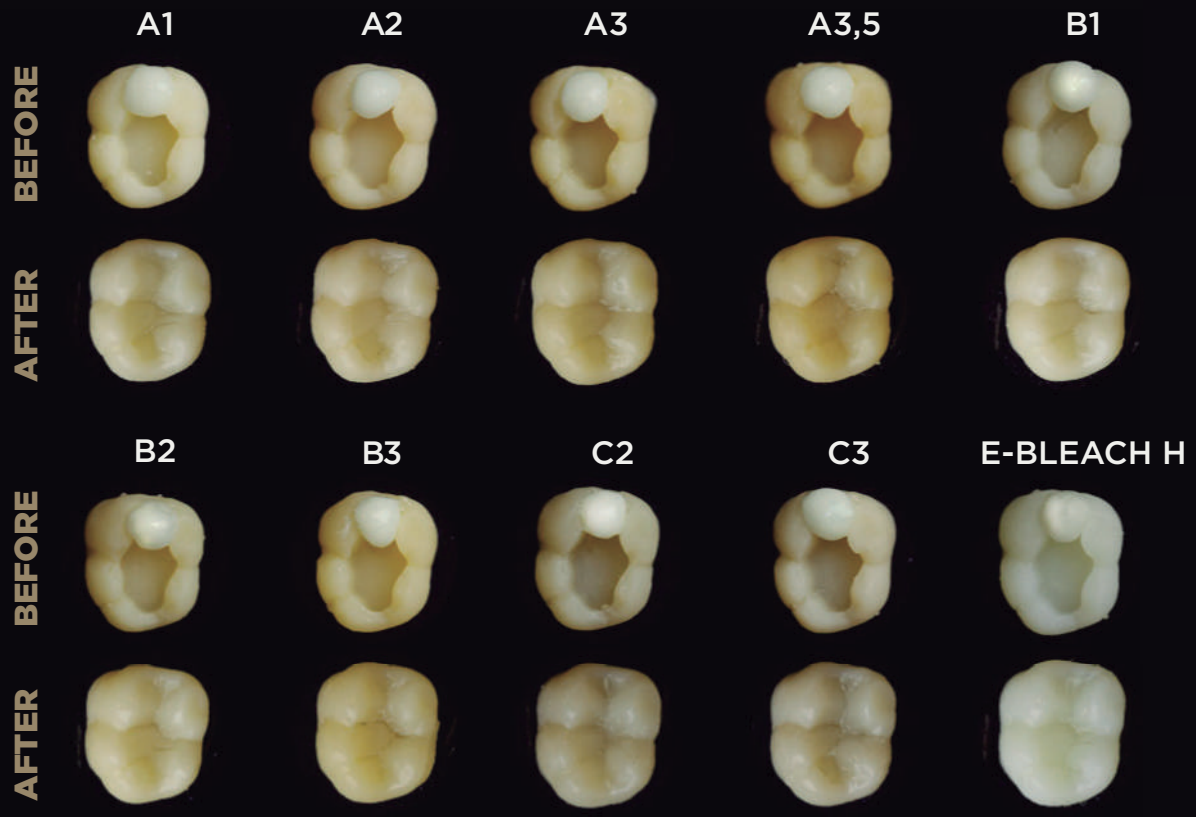
Before the polymerization, the contrast and the opaquer shade of the composite facilitate the visualization and control of the restorative procedure.

Lastly, the fillers, the well-dosed opacity, and the esthetics of the APS technology are fundamental to achieve perfect mimicry.

Technology

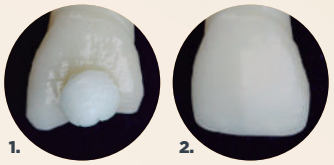
APS ADVANCED POLYMERIZATION SYSTEM

BEFORE AND AFTER POLYMERIZATION

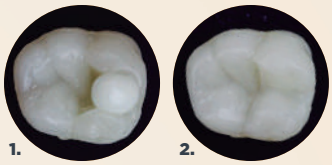


INDICATIONS

- Permanent and deciduous teeth: direct restorations of anterior and posterior teeth (classes I, II, III, IV, V, and VI).

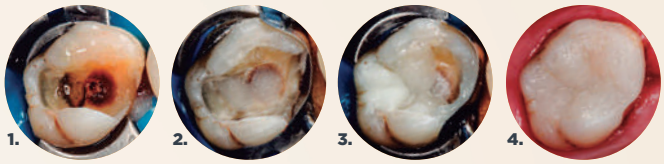


Anterior teeth



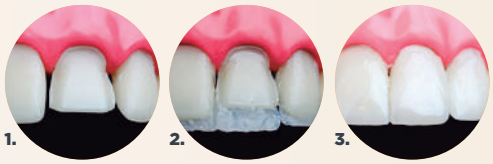
Posterior teeth

- For cavities of classes I, II, V, and VI, in case of darkening, cover the area with dentin composite or Vittra APS composite and proceed with the restoration using the incremental technique with Vittra APS Unique.



***1.** Cavity. **2.** Lining of the pulp wall with Glass Ionomer Cement. **3.** Three increments of Vittra APS Unique composite. **4.** Finalized restoration after polishing and hydration.*

- Class III and IV cavities (without a back wall that provides shade support): make a layer that will serve as a background for the restoration and finalize the rest of the volume with Vittra APS Unique incrementally.

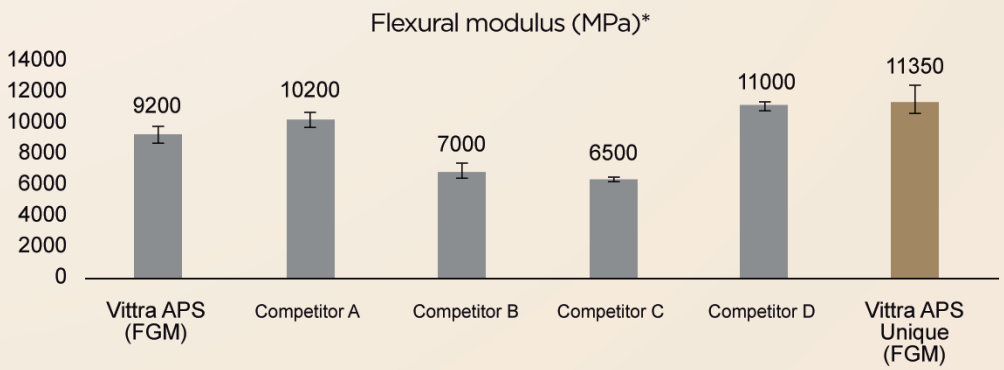


***1.** Cavity.*
***2.** Background composite.*
***3.** Restoration finalized with Vittra APS Unique.*

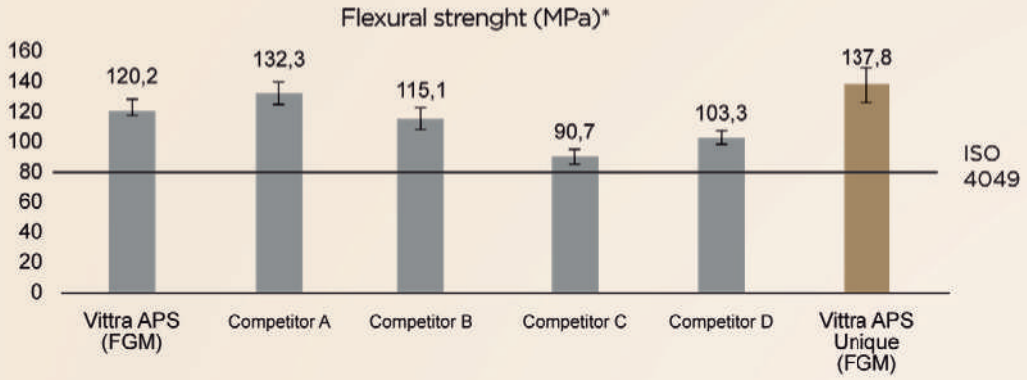
TIP: USING BACKGROUND COMPOSITE

When there is no background wall to copy or if there is a shade modification in the dental substrate, such as darkening exacerbated by the formation of tertiary dentin, amalgam staining, or other stains without defined origin, the use of background composite as shade support for Vittra APS Unique is necessary.

SCIENTIFICALLY PROVED APS TECHNOLOGY



Vittra APS Unique presented compatible result to what is stated in the literature for human dentin (between 11700 and 18300MPa***) and higher than competitors analyzed, demonstrating excellent resistance to acclusal forces, thus proving suitable for all classes of restorations.



Vittra APS Unique features flexural strenght superior to most competing products analyzed, with results up to 70% higher than the reference stipulated by the ISO 4049 standard (>80 MPa). The greater result, the greater the capacity of the composite to withstand the stress resulting from masticatory forces.

*Internal data. **Anusavice, K.J; Shen, C; Rawls, H.R. - Phillips Materiais Dentários. 12ª Edition. Rio de Janeiro: Elsevier, 2013.

OPINION OF THE SPECIALISTS!

"A composite for clinical situations that require agility, stock economy, and clinical time gain, with an interesting esthetic result without compromising the quality of one's work."

Dr. Claudio Sato and Dr. Adriano Sapata

"Vittra APS Unique was the greatest discovery of 2020 in my opinion. It facilitates many situations due to the power of mimicry that this composite has. In my clinical routine and in my courses, I show how it is possible to use it in repair situations, diastema closures, incisal augmentations, reanatomizations and even pediatric dentistry."

Dr. Glauco Menezes

"To simplify with quality! Vittra APS Unique is one of the rare choices that allow the clinician to minimize steps and always get the shade of their restorations right! Vittra APS Unique is unique."

Dr. Dayse Amaral

Vittra APS Unique is also for you!
Scan the QR Code with your cellphone for more information.

Why you should use Vittra APS Unique:

ONE COMPOSITE, MANY POSSIBILITIES!

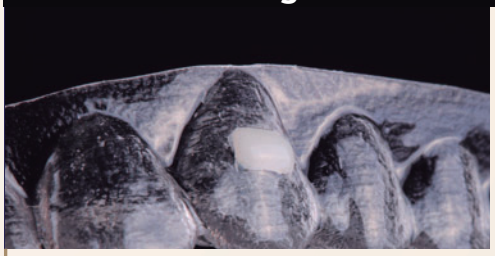
Restoration in anterior tooth and diastema closure

Dr. Rodrigo Reis

Pediatric dentistry

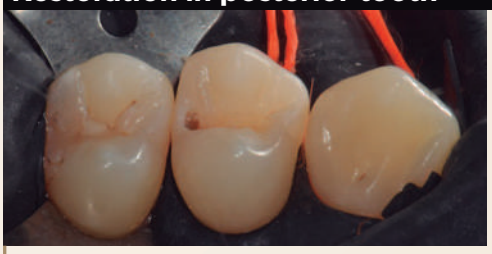
Dr. Dayse Amaral

Use in invisible aligners

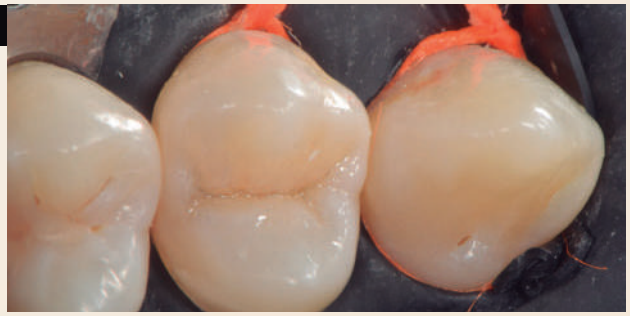


Dr. Thiago Roberto Gemeli

Restoration in posterior tooth



Dr. Claudio Sato and Dr. Adriano Sapata



Restoration over implants

Dr. Augusto Bessa

PREMIUM ESTHETICS

EXCELLENT CONSISTENCY

HIGH TECHNOLOGY

Technology APS ADVANCED POLYMERIZATION SYSTEM

- At least 4x longer working time than conventional composites.
- Predictability of composite shade even before photopolymerization (shade does not change during polymerization).
- Increased mechanical properties.

SPHEROIDAL ZIRCONIUM SILICATE

- High mechanical resistance.
- Easy to reach and maintain the polishing and shining.
- Excellent consistency.

BPA FREE

- BPA Free composite and syringe.

SMART SYRINGE

- Dosing dip: percise portions with no waste.
- Reduced risk of cross contamination.
- Smart lock lid safe, ergonomic and practical.
- Labeled syringes for dentin and enamel and syringes with different shades.

SHADE SYSTEM

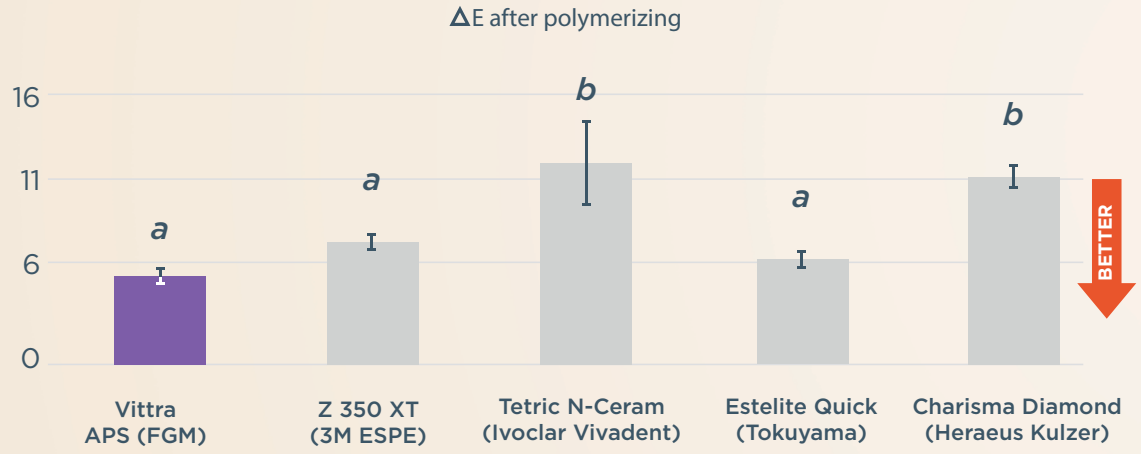
- All esthetic features in one simplified system.
- Available in 2g and 4g syringes.

HAVE YOU HEARD OF THE REVOLUTIONARY APS PHOTOPOLYMERIZATION TECHNOLOGY? VITTRA APS EXPLAINS IT TO YOU.

Have you ever wanted to have **more time to work with direct restorations?** Working with a composite that is less sensitive to room and reflector light is a great advantage, specially when building complex restorations. And, what if that same composite would **maintain its shade and opacity before and after photopolymerization,** increasing the predictability for results? With the APS technology, that is possible, and the benefits are reached without the need to use a specific photopolymerization type of equipment.

SCIENTIFICALLY PROVED APS TECHNOLOGY.

Total predictability of shade and opacity before/after photopolymerization The large majority of composites available on the market undergo a significant shade variation when photopolymerized. Vittra APS undergoes the lowest shade change.



Shade variation (ΔE average) before and immediately after polymerization [n=3] (1 factor ANOVA and Tukey test; p<0.05).

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

Conclusion: the professional is able to visualize the final esthetic result in real time, even before photopolymerizing the composite.

LONGER WORKING TIME IN REFLECTOR-LIT ENVIRONMENTS.

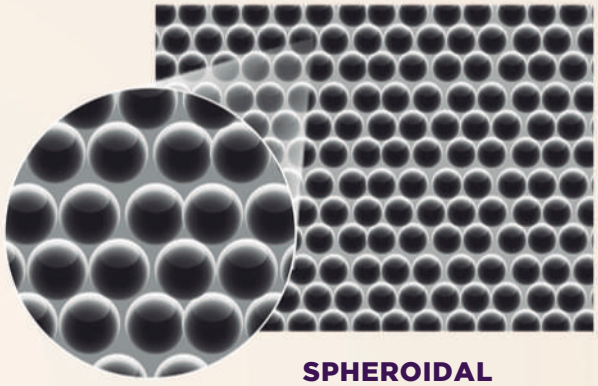
The APS system allows more working time for the Vittra APS composite when compared to systems with conventional photoinitiators available on the market. In the practice, Vittra APS allows the professional to work in the presence of light for enough time to design even the most complex restorations.

Working time with Vittra APS is, at least, 4 times* longer than most of its competitors.

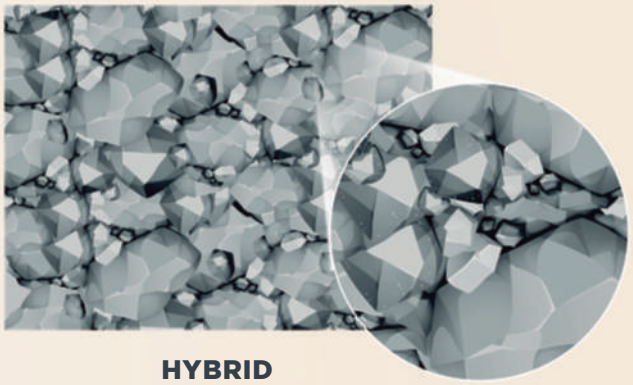
* According to a test carried out by Prof. Dr. Rodrigo Reis.

SPHEROIDAL ZIRCONIUM SILICATE: IT MAKES ALL THE DIFFERENCE FOR BETTER RESULTS.

Vittra APS's composition includes sub-micrometric loads of zirconium silicate, with particles measuring an average of 200nm. Their format, content and nature contribute to the obtainment of elevated mechanical properties and excellent esthetics, which are perceived by the easiness with which polishing and high-shine longevity are obtained.



SPHEROIDAL PARTICLES.



HYBRID (NON-SPHEROIDAL).

Excellent polishing and shine longevity.

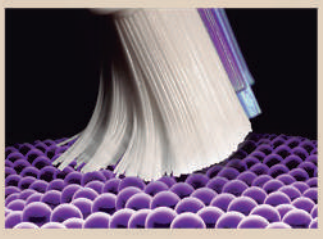
High mechanical performance and esthetics.

Excellent viscosity for handling. Does not adhere to the spatula, allowing for better design of restoration.

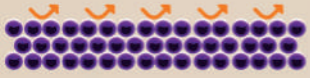
SUB-MICROMETRIC LOAD OF SPHEROIDAL ZIRCONIUM SILICATE

GREATER RESISTANCE TO WEAR AND A SMOOTHER SURFACE.

The sub-micrometric spheroidal zirconium silicate load present in the Vittra APS composite favors the high mechanical performance and is still the key to the greater resistance to wear and amazing esthetics, because it acts as impact deflectors on the surface. Vittra APS was the only composite not to show an increase in surface roughness after simulated brushing. That result demonstrates the elevated resistance to abrasion and reflects the properties expected due to the high Knoop Hardness value presented by the product. From a practical point of view, the surface smoothness of Vittra APS tends to increase, which explains the longterm maintenance of its shine.

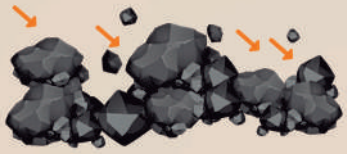


Simulation of brushing over the surface of the composite Vittra APS.

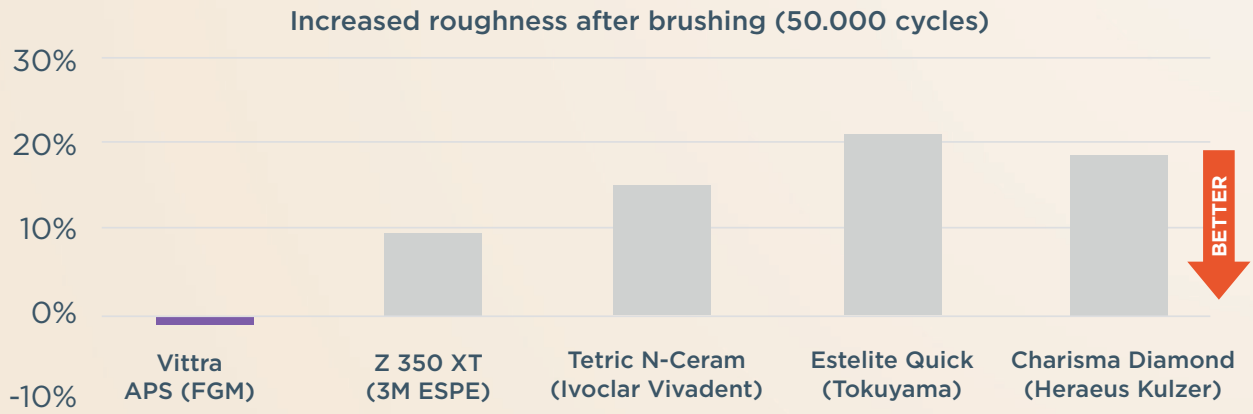


Smaller and spheroidal particles provide greater stability to the surface and are able to reflect with more efficiency the forces of the wear mechanism.

Simulation of brushing over a non-spheroidal composite surface.



Large particles generate large defects when the surface undergoes wear, resulting in the loss of shine due to the increase in roughness.



Increase in roughness (average in %) after simulated brushing (n+10).

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

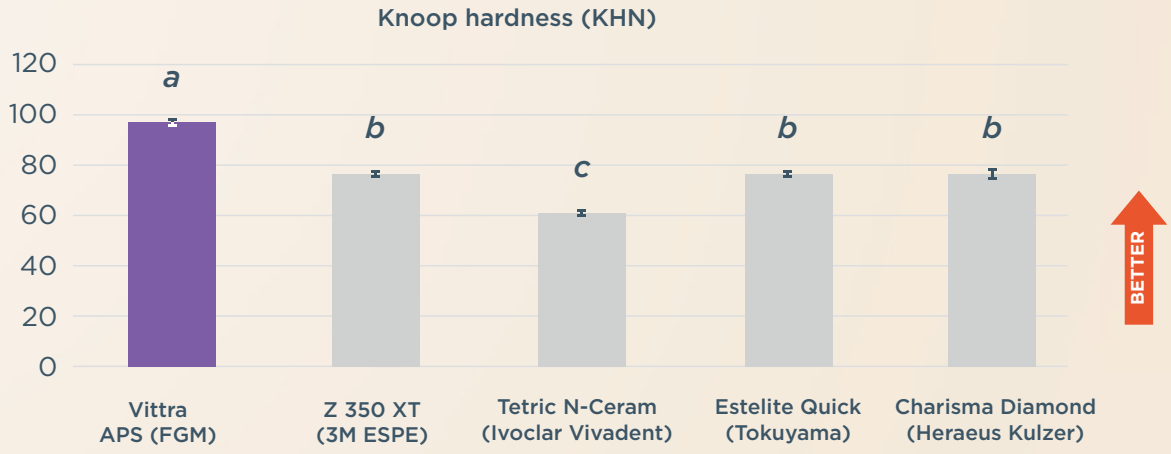
Conclusion: Vittra APS was the only composite not to show an increase in superficial roughness after simulated brushing, demonstrating excellent resistance to abrasion and great polishing maintenance.

HIGH SHINE POLISHING:

VIttra APS is able to provide extremely polished surfaces and maintain that shine even after an acid challenge[1,2], which contributes to the longevity of the restoration, both functionally and esthetically. That performance is mainly due to the spherical geometry, size and quantity of load particles and the association with a polymeric matrix that is highly resistant to wear.

HARDNESS AND ENDURANCE:

Hardness and wear endurance are properties that depend intrinsically on the mechanical properties of the composite, the type of stress to which it is submitted and the properties offered by the composite's load elements. Vittra APS's hardness originates from the quality, morphology and content of the loads used as well as from the quality of the polymer formed and its interaction with those loads.



Knoop Hardness (average and standard deviation in KHN) of different composites (n=5) (1 factor ANOVA and Tukey test; $p<0.05$).

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

Conclusion: Vittra APS showed greater surface hardness than the composites that were included in the test, contributing to the excellent mechanical performance.

1. Maciel, A.P.C. Avaliação da rugosidade de resinas compostas após imersão em solução ácida com uso de confocal. Trabalho de Conclusão de Curso – Escola de Ciências da Saúde da Universidade de Brasília. Brasília, 69p. 2017.
2. Szekeresh, AJCC, Coelho, JKP e Amaya, OMC. Avaliação Da Rugosidade Superficial De Resinas Compostas Após Desafio Ácido. Unidade de Ensino Superior Dom Bosco, São Luiz – MA, 2018.

SHADE SYSTEM

The concept of Vittra APS shades has the purpose of organizing and simplifying the whole evolution of composites. Vittra APS makes available the shades mostly used in simple and complex restorations. Following a worldwide trend, it comes with a single tone for dentin (universal) – shade A Vita Classical® - with 7 saturation options, which simplifies the professional's routine when choosing the shade to use.

DENTIN

DA0 DA1 DA2 DA3 DA3.5 DA4 DA5

ENAMEL

E-BLEACH EB1 EA1 EA2 EA3

TRANSLUSCENT

TRANS OPL TRANS N

VALUE

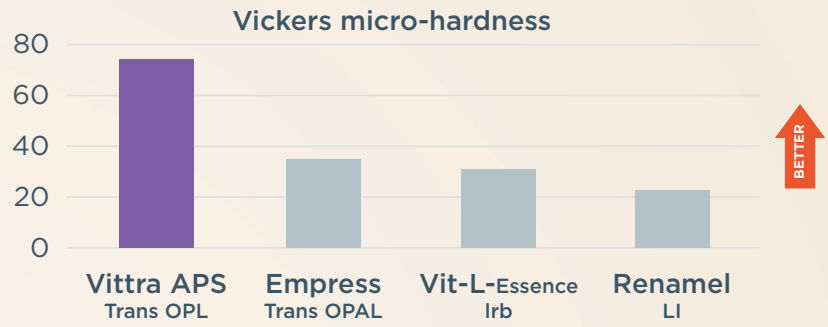
VH (HIGH) VM (MEDIUM)

THE FANTASTIC TRANS OPL SHADE: ESTHETICS ALLIED TO RESISTANCE.

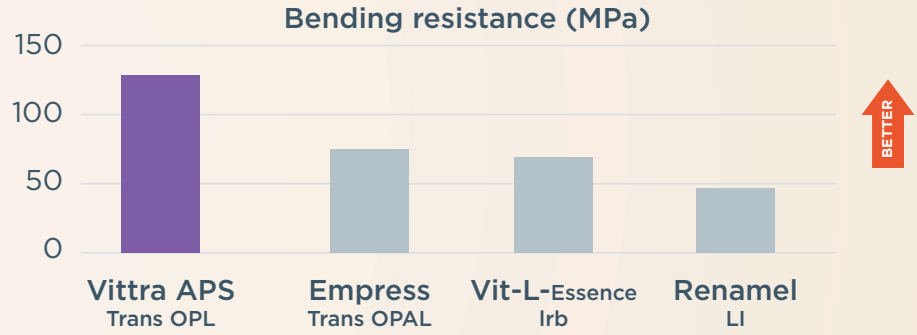
A composite recommended for incisal application needs to have differentiated optical properties and high wear resistance, because that region is the one that suffers the most with the masticatory process. Vittra APS Trans OPL was developed aiming at the best performance as an incisal composite. The charts that follow show that **Vittra APS Trans OPL is the best composite for incisal application on the market.**

SCIENTIFICALLY PROVED RESISTANCE.

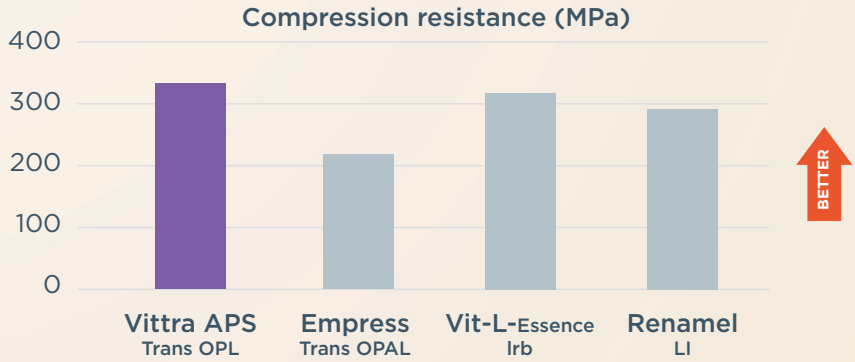
See the studies carried out with Trans OPL compared to the competition. All tests were carried out by Prof. Dr. Rodrigo Reis (Instituto R2) and Prof. Dr. Paulo Quagliatto (UFU).



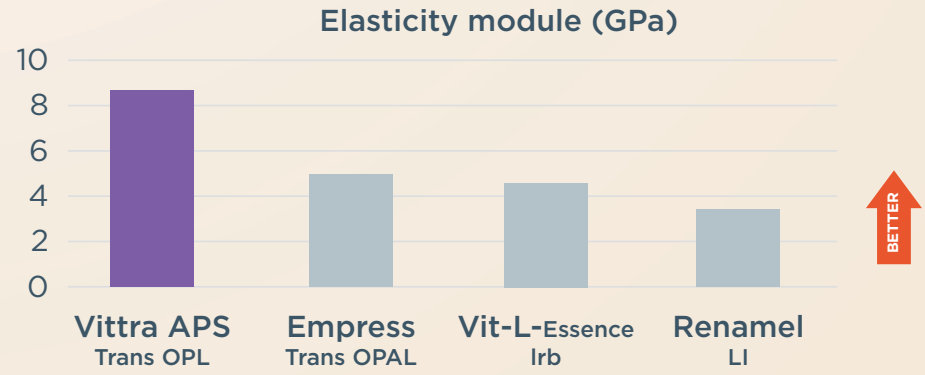
The higher the hardness, the greater the resistance to abrasion expected by the material. **Vittra APS has more than twice the hardness of the competition.**



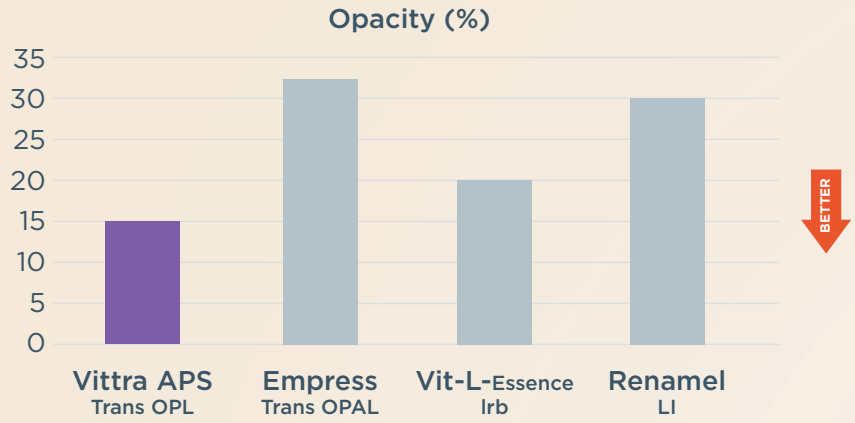
Bending forces happen during mastication and may lead to failure due to its cyclic character. Therefore, it is important to use a material that is highly resistant to bending. **Vittra APS Trans OPL shows excellent level of bending resistance.**



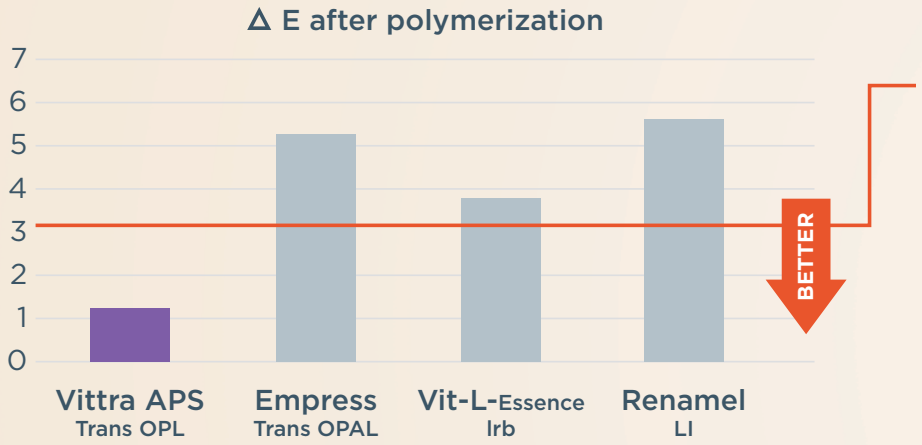
Compression is a force that occurs with high frequency over restorations during the mastication cycle and has direct influence in the longevity of the restoration. **Vittra APS Trans OPL shows higher compression resistance than its competitors.**



The elasticity module is related to the rigidity of the material. Lower values allow for deformation while higher levels make the material less flexible.



The chart shows that the Vittra APS Trans OPL composite is more translucent when compared to its competitors. Ideal for the effect of the incisal border.



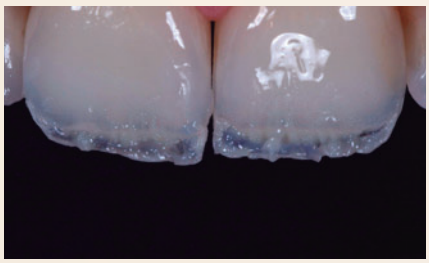
Above this line, level of shade change perceptible to the naked eye.

ΔE indicates the magnitude of the total shade difference between before and after polymerization. The lower the delta E, the lower the visual perception of shade change before and after photopolymerization.

Source: Prof. Dr. Rodrigo Reis (Instituto R2) and Prof. Dr. Paulo Quagliatto (UFU).

INCISAL EFFECT WITH MAXIMUM NATURALNESS.

Initial smile.



Reconstruction of the incisal border with Vittra APS Trans OPL, providing the opalescent aspect of the enamel border.

Final result.

Photographs kindly provided by Prof. Maciel Junior.

OPINION OF THE SPECIALISTS!

One of the best premium composites introduced recently, with characteristics like: unperceptive change of shade between before and after polymerization and longer working time, even in contact with the reflector's light due to the development of an exclusive technology for light-curing called APS. It is worth mentioning the preoccupation with the future, when introducing in the market a composite that is BPA free. That substance is related to several health problems and the search for BPA-free dental products has been a trend in Europe and in the United States.

Prof. Dr. Alessandro Loguercio
Undergraduate, Graduate and Doctorate
Professor of Odontology – UEPG/PR.

Congratulations to FGM for the constant development of new materials and technologies searching to give support to the most demanding professionals. Vittra APS is a composite with excellent properties and stands out for maintaining its shade during polymerization, allowing for excellent working time even with the reflector on, for its capacity to allow for excellent polishing and for being the first BPA-free composite.

Prof. Dr. Leonardo Muniz
Master in Clinical Dentistry – (FO) – UFBA).
Integrated Clinic Professor – (EBMSP).

I have been working with Vittra APS since 2018. I have made a lot of restorations in indirect and direct applications with this composite. I am amazed by the natural shade apparence, easy to reach and maintain the shining. The resistence can be compared to the hardest composites in the market, ideal for restorations.

Prof. Dr. Luis A. Felippe
Master in Operative dentistry - UFSC.

Free from components that may have negative effects for the health of children.

Profa. Dra. Sandra Kalil
Head of the subject of Dental Materials –
UNIMES/Santos and UNINOVE/SP.

A milestone in dentistry.

Prof. Dr. José Carlos Garófalo
Master in Restorative
Dentistry at FO – USP.

Fantastic polishing and handling.

Prof. Dr. Carlos Francci
Master, Doctor and Fulltime
Professor of Dental Materials at FOUSP.

CLINICAL CASE

ESTHETIC ANTERIOR RESTORATION WITH VITTRA APS

Author: *Dr. Orlando Reginatto.*

Fig. 1a – Evaluation of the spontaneous smile.
Fig. 1b - Zoomed-in view of the incisive teeth.
Fig. 1c - Lips at rest.
Fig. 2 - Cavity preparation of the white stain of tooth 11 and making of the palatal indes for the tooth copying the old restotation.
Fig. 3 - Restorative test of the tooth 11 showing that the is no need for more wearing. Vittra APS composite in shades DA0, DA1 and E-Bleach was used.

Fig. 4 - Preparation of tooth 21 and isolation.
Fig. 5 – Fiiting of the silicon index.

Fig. 6 - Vittra APS in shade Trans OPL for the palatal shell.
Fig. 7 - Vittra APS in shade E-Bleach for the proximal walls.

Fig. 8a - Vittra APS in shade DA1 body composite covering the bevel of the teeth 11 and 21 .
Fig. 8b - Side view with the body composite finalized. Shade DA1 in the medium third and bevel. Shade DA0 only in the incisal part.

Fig. 9 - Final layer of Vittra APS in shade E-Bleach.

Fig. 10 - Final photograph of the smile.

Access QR code to see more cases with Vittra APS.

ambar APS

Light-curing adhesive system for enamel and dentin.

GREATER RESISTANCE AND ADHESIVE LONGEVITY.

APS ADVANTAGES

- **Excellent performance for both the specialist and the clinician, at any moisture level of dentin.**
- **Greater esthetic (colorless aspect).**

- Increased adhesion to enamel, healthy dentin and dentin addected by caries.
- High conversion degree.
- Lower rate of merginal infiltration.
- Formation of a more resistant adhesive film.
- Longevity of adhesion.

BPA FREE

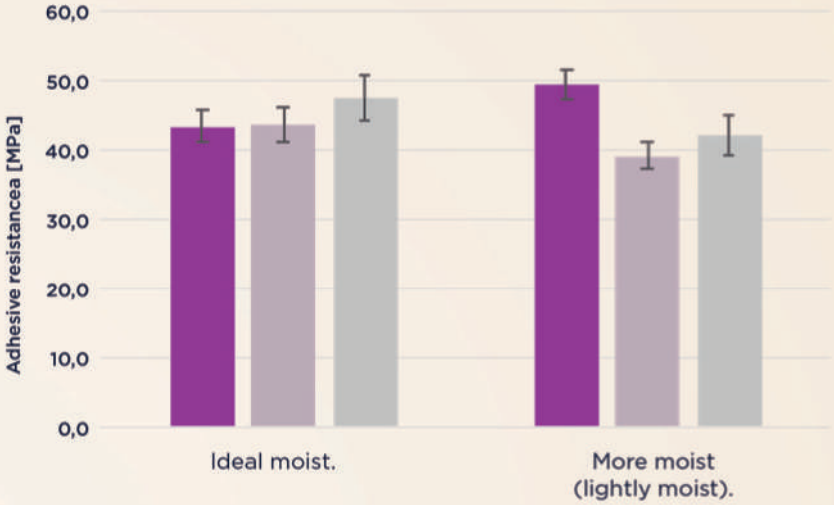
WITH MDP

The adhesive is ideal for application in hard-to-reach regions, such as in restorations on lower teeth or close to the gum.

*Colorless aspect of ambar APS

Photograph: Prof. Dr. Javier Lemma

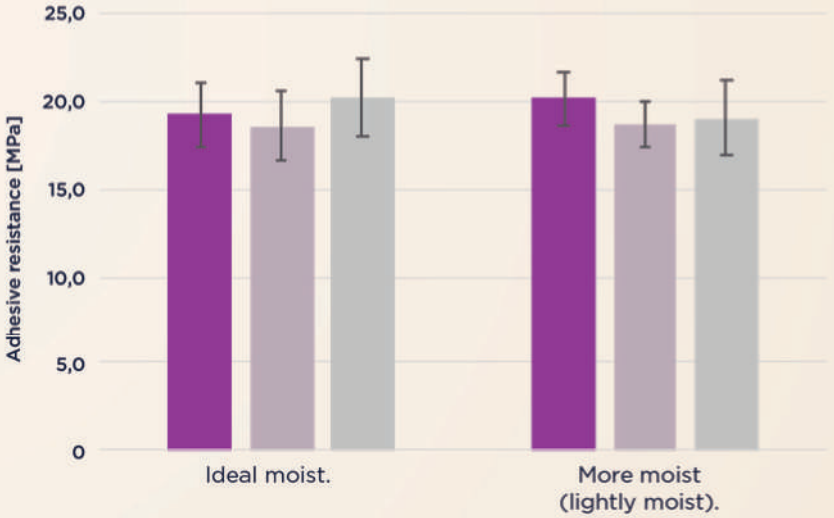
Adhesive resistance to dentin [MPa]



It is important to notice that the level of adhesion remains high even with a more moist dentin or enamel, which means that the adhesive is more tolerant to moisture. That is beneficial directly to the practice making the adhesive less sensitive to the technique.

- Ambar APS
- Ambar
- Single Bond 2 (3M ESPE)

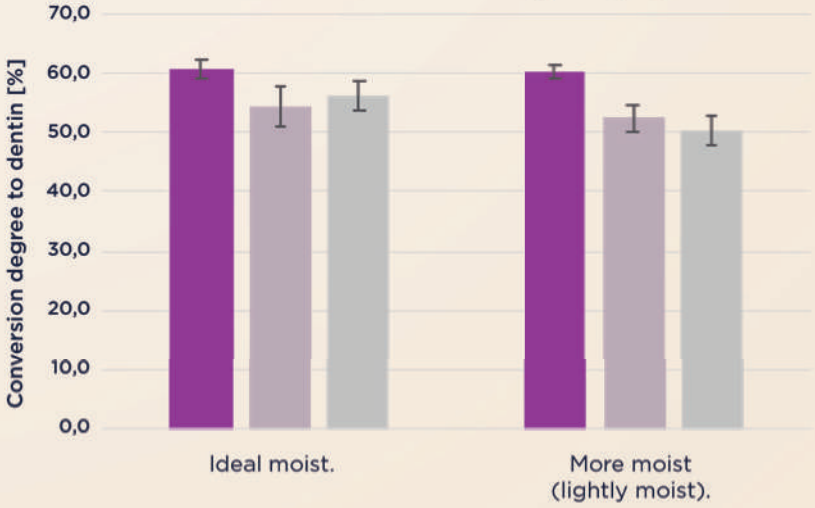
Adhesive resistance to enamel [MPa]



- Ambar APS
- Ambar
- Single Bond 2 (3M ESPE)

Source: Loguercio AD, et al., UEPG-PR, 2018.

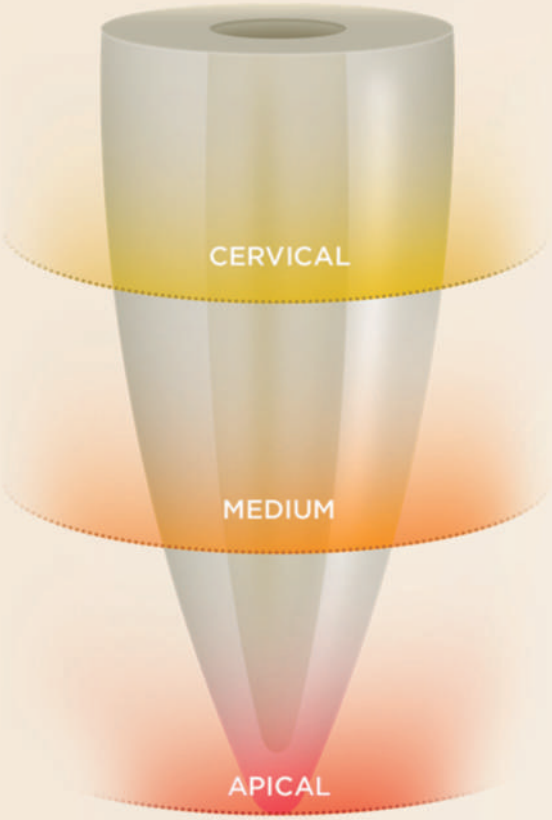
Conversion degree [%]



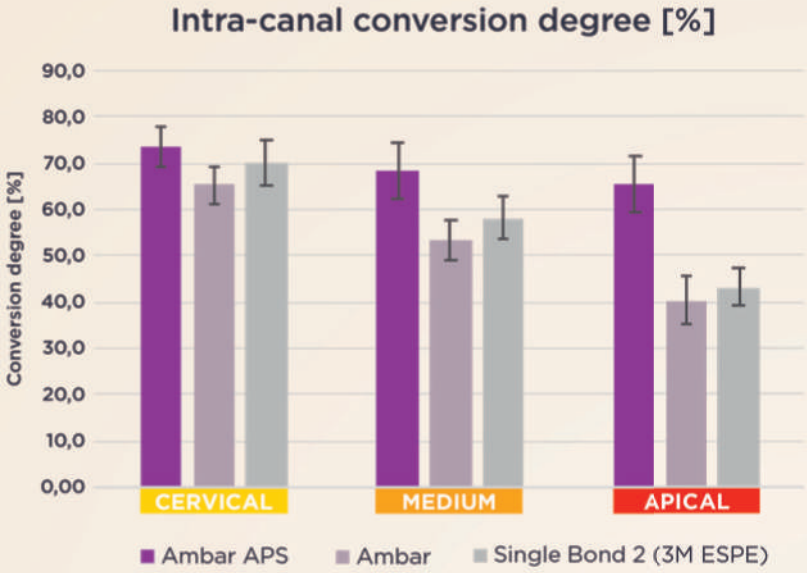
The greater the conversion degree, the better the quality of the structure of the adhesive film. Ambar APS showed a high conversion degree even on dentin with higher moist.

- Ambar APS
- Ambar
- Single Bond 2 (3M ESPE)

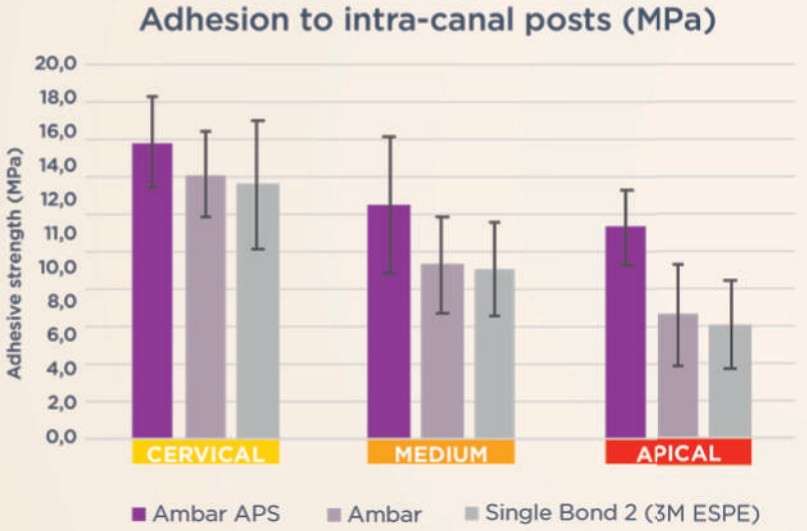
Source: Loguercio AD, et al., UEPG-PR, 2018.



Ambar APS stood out for showing the best result in the apical area, a critical area to achieve with light-curing device.

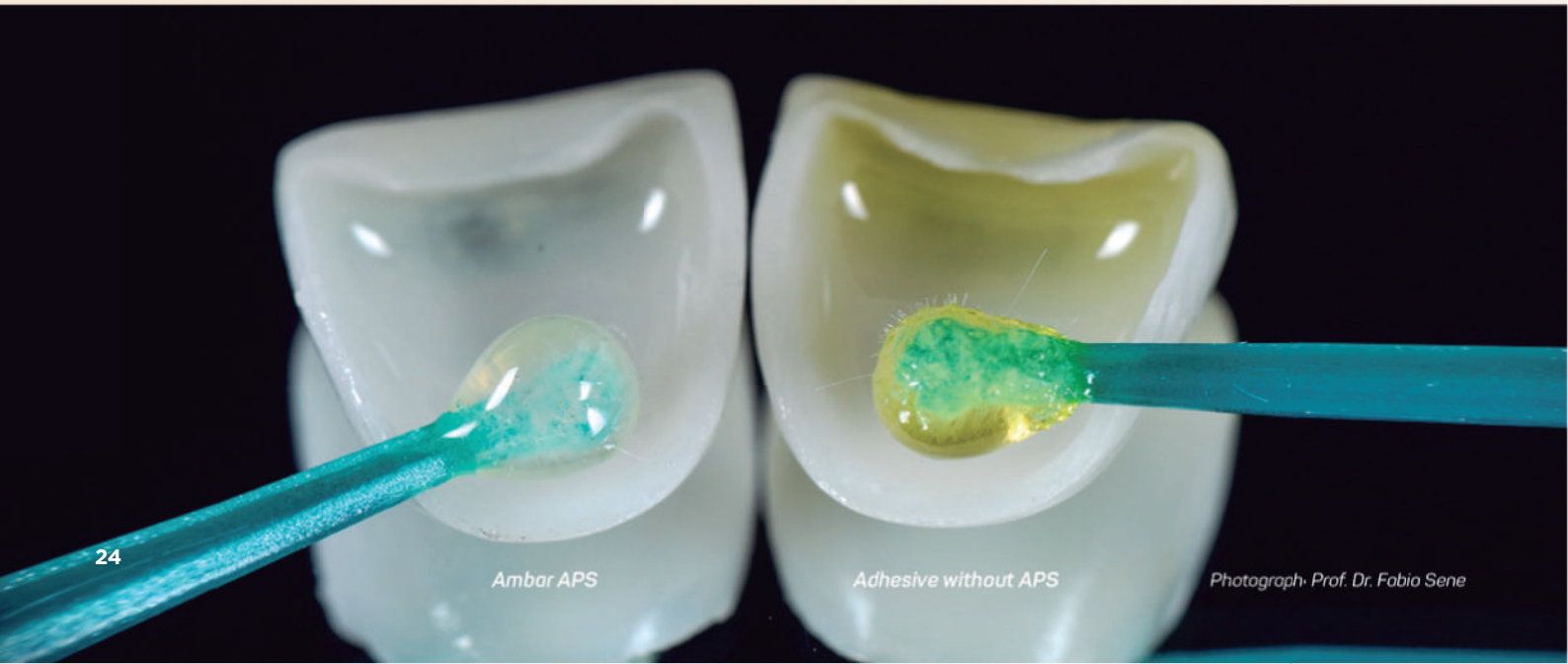


The high conversion degree in the apical third reveals the potential of the APS system in the polymerization of the adhesive.



The intra-canal adhesion has always been a challenge for adhesives and cements. With ambar APS, it was possible to achieve very high adhesion levels along the whole length of the canal, even in the apical portion that represents the most difficult area for adhesion.

Source: Loguercio AD, et al., UEPG-PR, 2018.



HIGH PERFORMANCE IN MOIST DENTIN

ambar APS UNIVERSAL

Self-etching light-curing adhesive system for enamel and dentin.

APS ADVANTAGES

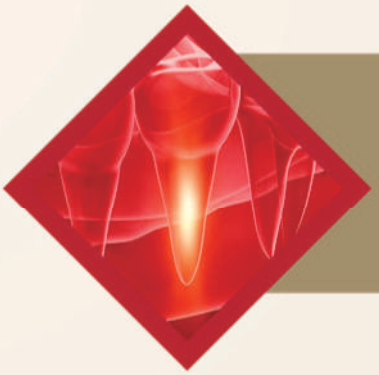
- **Excellent performance for both the specialist and the clinician, at any moisture level of dentin.**
- **Greater esthetics (colorless aspect).**

- **All the qualities of Ambar APS maximized.**
- High adhesion in different forms of application: total acid etching, selective etching on enamel and self-etching.
- Adhesion to different types of surface: metals, ceramics, composites and fiberglass posts.
- Versatility with minimal sensitivity.

BPA FREE

WITH ENHANCED MDP

Increased adhesion strength and improved adhesive film stability.

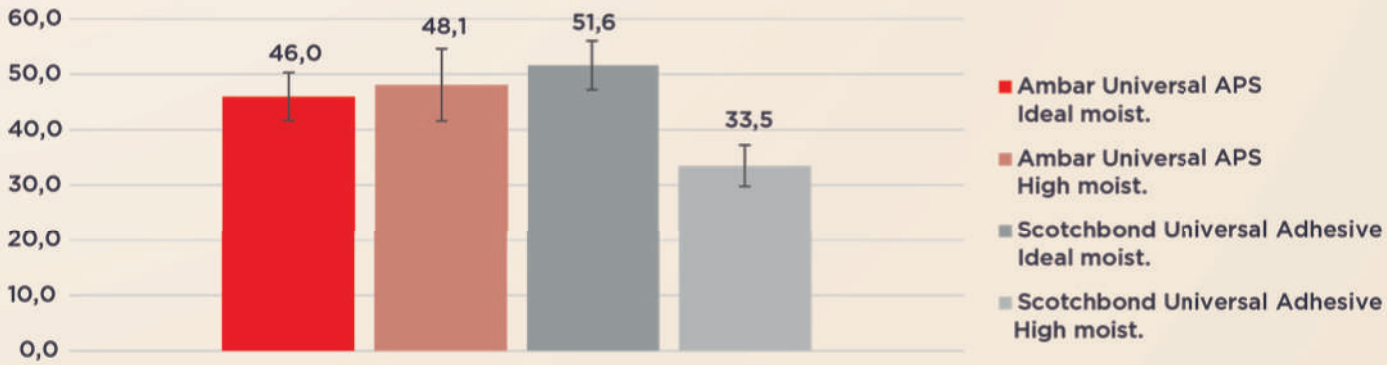


THE MOST RECOMMENDED FOR INTRACANAL APPLICATION

- High adhesion rates in the intracanal region.
- Better polymerization even in the apical region.
- Greater compatibility with dual cements.

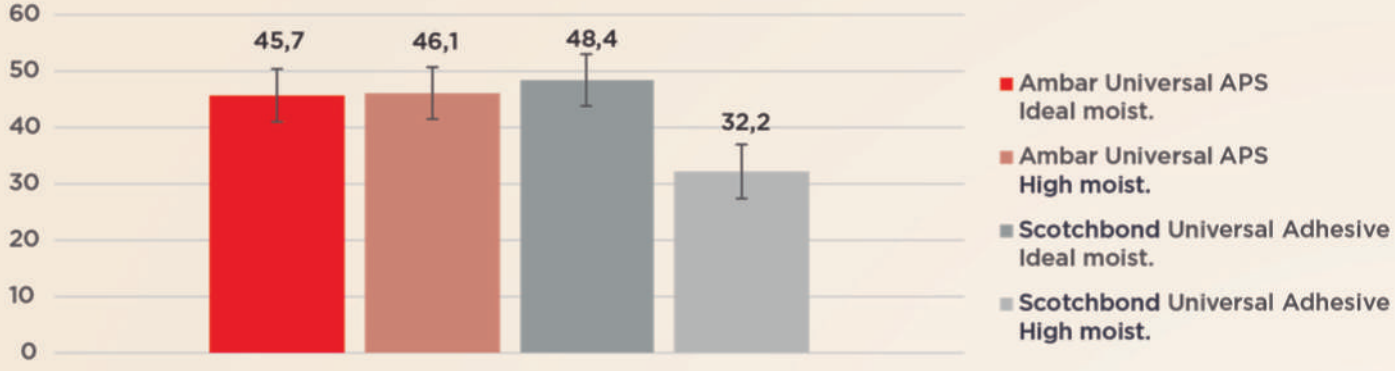
APS *Techology differentials*

Adhesive longevity to dentin with phosphoric acid (MPa)



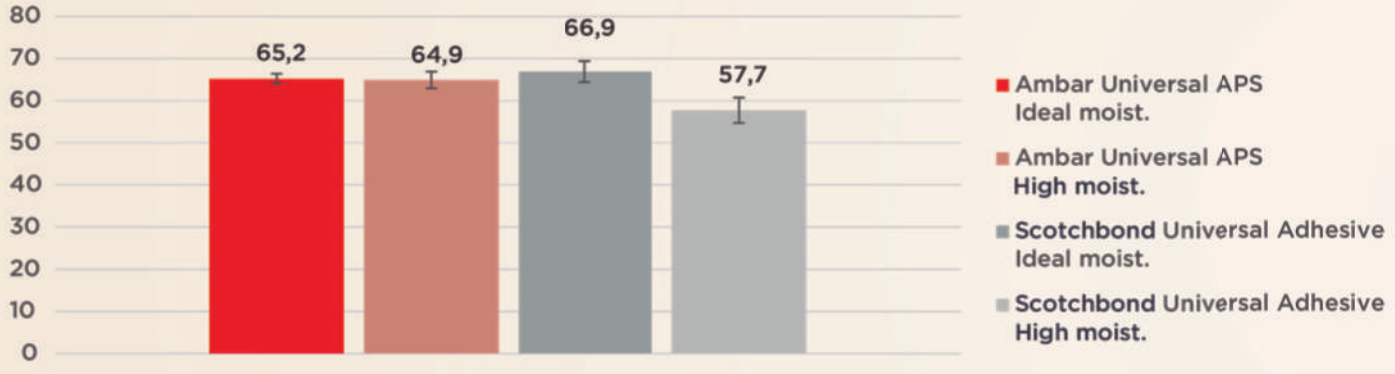
Loguercio, A.D. et al, Influence of dentinal moisture on the properties of universal adhesives, International Journal of Adhesion and Adhesives,Volume 101, 2020.

Adhesive longevity to dentin without phosphoric acid (MPa)



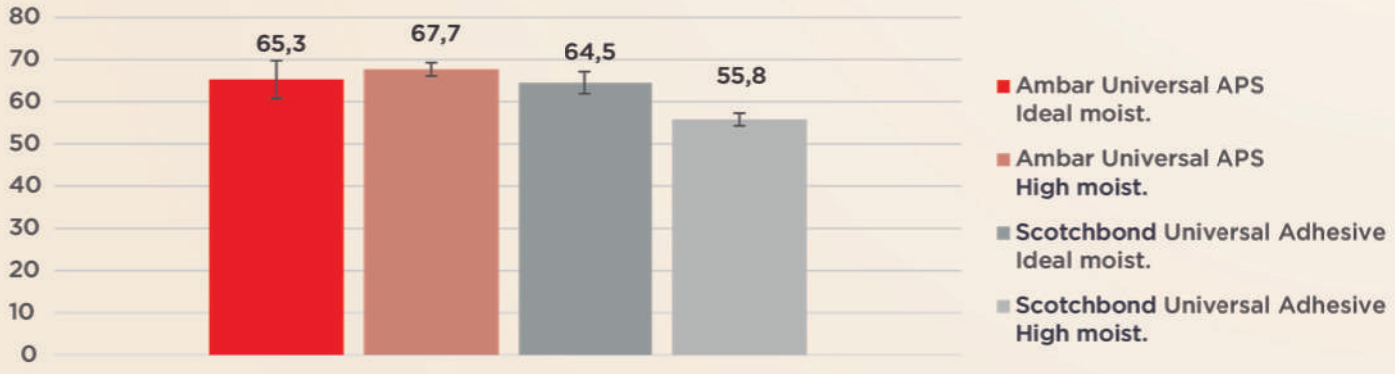
Loguercio, A.D. et al, Influence of dentinal moisture on the properties of universal adhesives, International Journal of Adhesion and Adhesives,Volume 101, 2020.

Conversion degree with phosphoric acid (%)



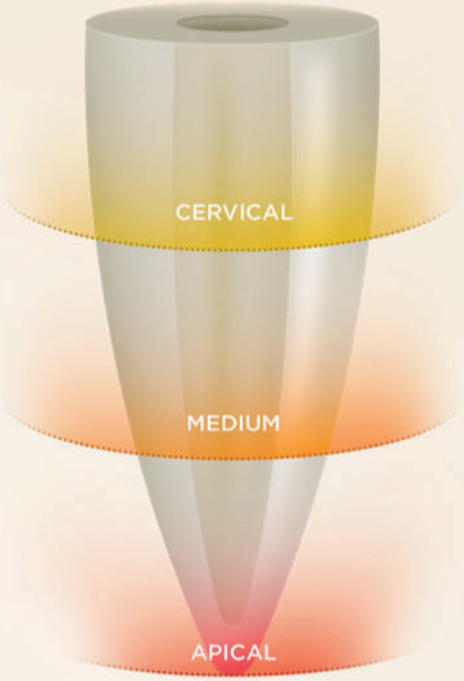
Loguercio, A.D. et al, Influence of dentinal moisture on the properties of universal adhesives, International Journal of Adhesion and Adhesives,Volume 101, 2020.

Conversion degree with phosphoric acid (%)

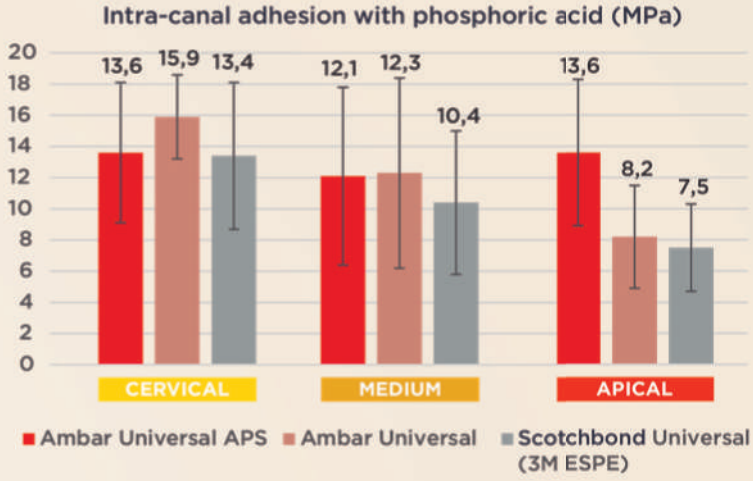


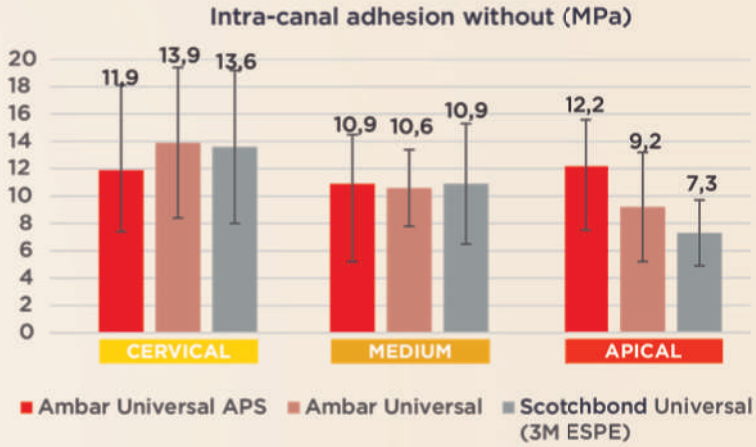
Loguercio, A.D. et al, Influence of dentinal moisture on the properties of universal adhesives, International Journal of Adhesion and Adhesives,Volume 101, 2020.

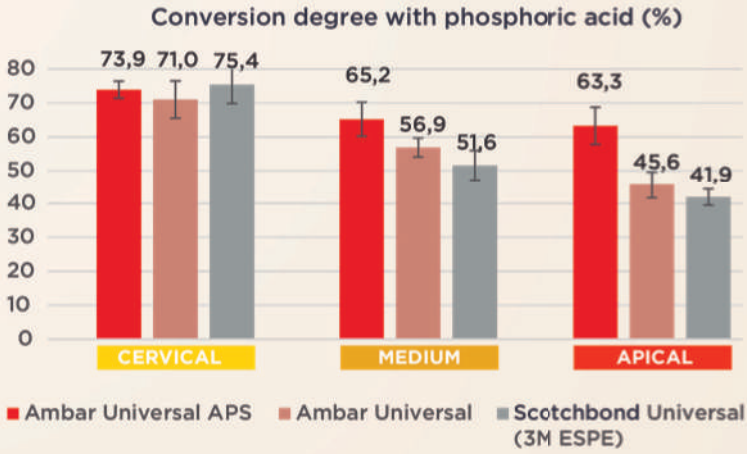
Conclusion: regardless of acid etching and the level of dentin moist, AMBAR UNIVERSAL APS shows high adhesive resistance and conversion degree.

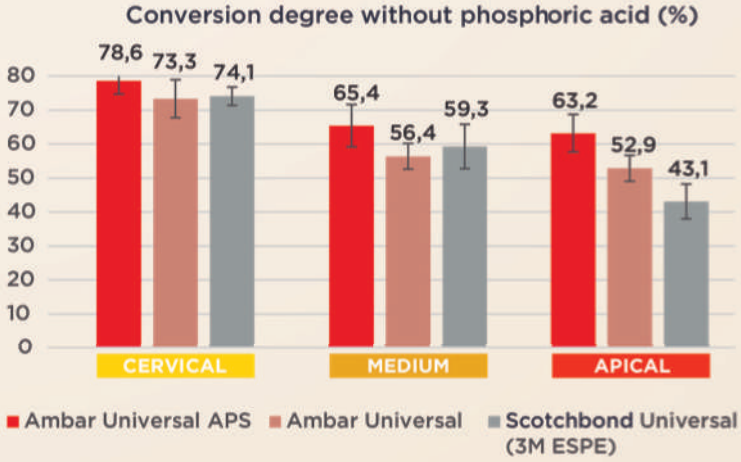


The high adhesion of Ambar Universal APS even without previous acid etching gives the professional the choice of not etching the canal before cementing posts, making the technique easier.









"APS brought to Ambar greater polymerization efficiency, a colorless aspect and even greater adhesive capacity"

PhD. Alessandro Loguércio

- Specialist and magisterium in restorative dentistry - UFPel, Pelotas | RS - Brasil.
- Doctor in dental materials - FO USP, Sao Paulo | SP - Brasil.
- Professor of graduate, master and doctor - UEPG, Ponta Grossa | RS - Brasil.
- Brazilian government investigator (CNPq) since 2002 - PQ 1A.
- Aauthor of more than 370 articles in pubmed (Loguercio A).
- Author of two books: dental materials (Reis, Loguercio, 2007) and Tips in Esthetic Dentistry (Hirata et. Al., 2012).

V Hass et al, Effect of the Photo-initiator System Contained in Universal Adhesives on Radicular Dentin Bonding. Oper Dent 1 September 2020; 45 (5): 547-555

Allcem Veneer APS

Light curing resin cement for veneers and no-prep veneers.

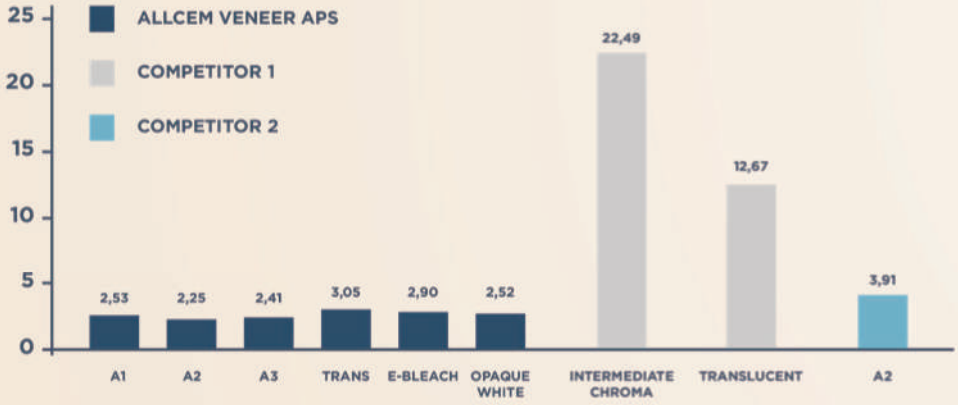
HIGH ESTHETIC PERFORMANCE IN YOUR HANDS

Allcem Veneer APS is the ideal esthetic solution for adhesive cementing of thin ceramic pieces (up to 1.5mm). The product presents a technology that was specially developed for greater predictability, easiness and safety in the cementation phase. Get to know Allcem Veneer APS and achieve the best performance in you esthetic oral rehabilitations.

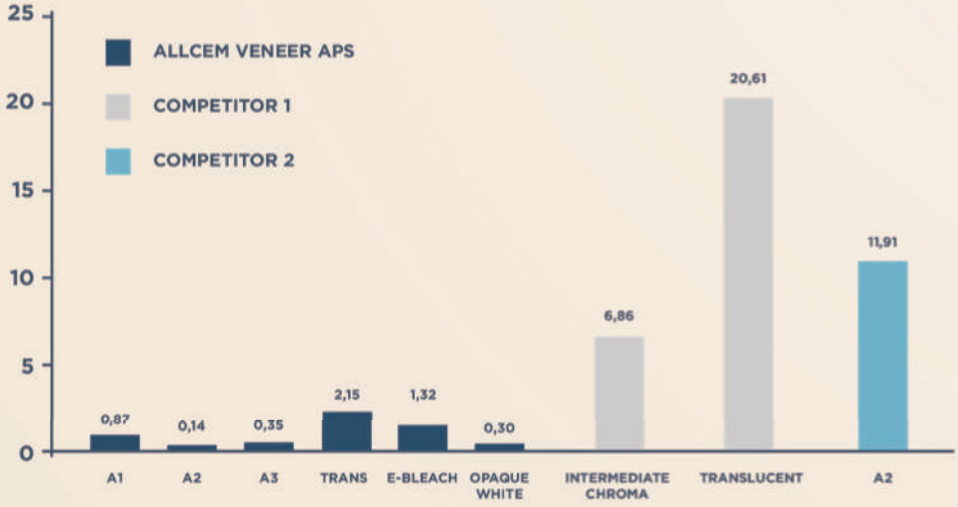
APS ADVANTAGES

- Longer working time for veneer positioning in bright environment.
- Maximum esthetic predictability: no variation in shade and opacity after polymerization.

ΔE before and after polymerization



ΔO before and after polymerization



Source: Internal data FGM.

With such low shade and opacity variations it is possible to say that the shade of the cement when positioning the piece on the tooth is the same of that after polymerization. That fact increases the predictability of the result and allows confirming the selection of the shade prior to the photopolymerization during the entire procedure.

SHADE STABILITY

Since veneers and no-prep veneers are extremely thin and translucent, it is a crucial that the cement keeps its shade permanently not to compromise the esthetics.

After immersion in substances with a high pigmentation capacity, in a challenge test that extrapolates clinical conditions, the product showed shade variation that was similar to that of the competition.

	Allcem Veneer APS - FGM			RelyX Veneer - 3M			Variolink Veneer - Ivoclar		
ΔE	Water	Cola-based soft drink	Coffee	Water	Cola-based soft drink	Coffee	Water	Cola-based soft drink	Coffee
24h	1,6 d	1,4 d,e	4,6 c	3,3 c,d	1,8 d,e	4,2 c	6,2 b	0,4 e	2,0 d
7 days	1,3 d,e	3,9 c	7,2 b	1,7 d	4,2 c	6,4 b	1,3 d,e	3,3 c	8,6 a
30 days	0,4 e	1,3 d,e	8,1 a	2,1 d,e	3,1 d	9,5 a	0,5 e	2,8 d	8,0 a

Evaluation (average) of the shade stability of resinous rements forveneer. Diffetent letters indicate statistic difference.. (3-factor ANOVA and Tukey's test: p<0,05).
Sourcee: Muñoz M, Luque-Martinez I,Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG), 2013.

HIGH ADHESIVE STRENGTH TO DIFFERENT SURFACES (MPA)

	Allcem Veneer - FGM (MPa)	RelyX Veneer - 3M (MPa)	Variolink Veneer - Ivoclar (MPa)
Dentin	18,8 ± 1,2 a	18,5 ± 1,5 a	18,6 ± 1,7 a
Indirect composite	22,3 ± 1,6 A	12,8 ± 0,6 A	21,8 ± 1,4 A
Ceramics	14,9 ± 1,8 α	13,6 ± 1,2 β	12,3 ± 1,1 β

Bonding resistance of resinous cements for the facet to dentin, indirect resin and ceramics. different letters indicate statistic difference. (1-way ANOVA and Tukey's test for each property: p<0,05)
Souree: Muñoz M, Luque-Martinez I, Szesz A, Cuadros J, Reis A, Loguercio A. Universidade Estadual de Ponta Grossa (UEPG), 2013.

63%

HIGH MECHANICAL RESISTANCE

With 63% of load in weight the cement forms an adhesive film with high resistance to bending and traction.

EASY HANDLING

Rheology specially developed for maintaining the pieces in places and for facilitating the removal of excess material. Due to its thixotropy, it is not necessary to apply too much force to the piece when placing it, which prevents the fracture of such delicate pieces. Besides, the cement is capable of generating adhesive films that are extremely thin (around 30µm) which favors the adaptation of the pieces to the tooth.

EVEN MORE SAFETY WHEN CHOOSING THE COLORS WITH TRY-IN PASTES

Allcem Veneer APS is available in 6 shade options: A1, A2, A3, Translucent, Opaque White and E-Bleach M. For each shade, the respective shade-proof paste is available. It is manufactured in glycerin-based material (easily washed) which mimics the shade of the cement. Besides, TRY-IN pastes have another important function: to maintain the pieces in the right position allowing for a dynamic evaluation of the work final cementation.

*Check the technical profile of the product on: fgmdentalgroup.com

OPUS BULK FILL FLOW APS

Fluid low shrinkage stress light-curing composite for the base of restorations in large increments.

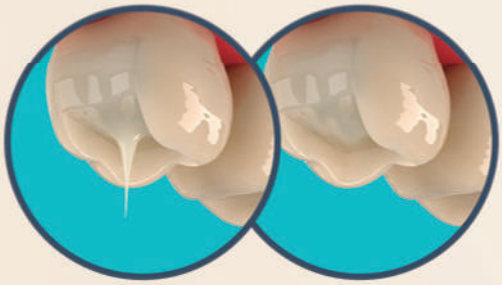
OPUS BULK FILL APS

Low shrinkage stress light-curing composite for restorations in large increments.

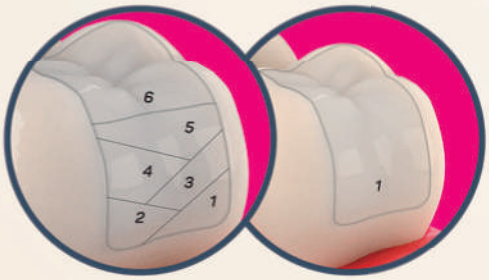
The Opus line of composites allows for the optimization of the clinical time for direct restorations with no compromise of safety or quality. Showing low shrinkage stress and great curing depth, regular or fluid viscosity composites are perfect for extensive restorations on posterior teeth.

FILL UP ALL THE REQUERIMENTS OF A PERFECT RESTORATION.

*When compared to regular restorative prodecures.



SMART VISCOSITY:
self-leveling and anti-gravity rheological effect



INCREMENTAL TECHNIQUE ***BULK FILLING TECHNIQUE***

APS ADVANTAGES

- Greater polymerization depth - up to 4mm.
- Low shrinkage stress.

RECOMMENDED AS BASE FOR RESTORATIONS

└ Must be layered by a thick consistancy composite.

APS ADVANTAGES

- Greater polymerization - depth up to 5mm.
- Longer working time for sculpture: stability under ambient/reflector's light.
- Greater opacity after polymerization.

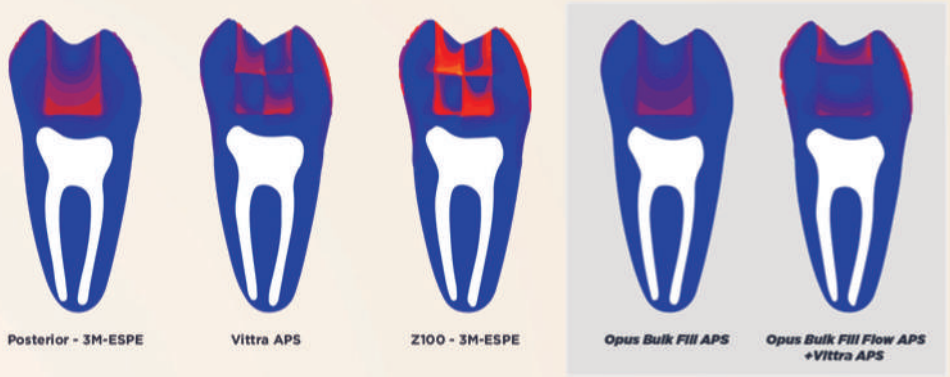
DOES NOT NEED LAYER COMPOSITE

└ A whole restoration made with only one composite.

MAXIMUM CONVENIENCE AND VERSATILITY:

- Greater opacity APS ADVANTAGES
- Longer working time APS ADVANTAGES
- 3 shade options (A1, A2 and A3)
- No waste of clinical time

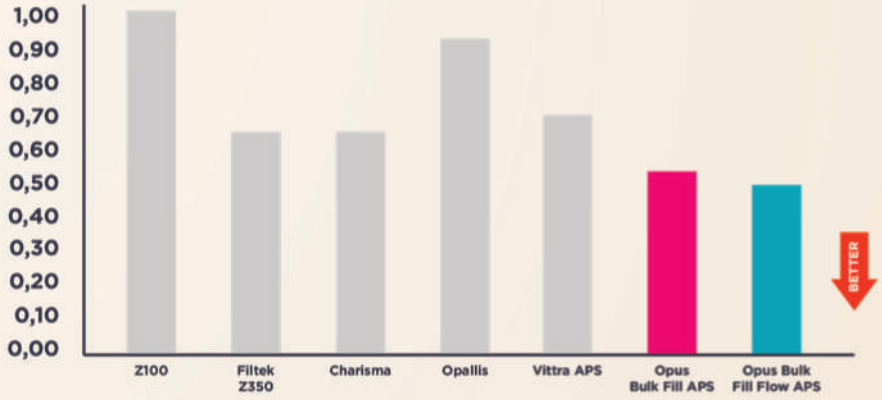
Shrinkage stress.
Finite elements.



Shrinkage stress different restorative materials is represented in the image on the left originated in a finite element test. The red areas represent the areas with greater stress. It is noticeable that Opus Bulk Fill APS and Opus Bulk Fill Flow APS show the lowest level of shrinkage stress.

Source: Prof. Dr. Carlos José Soares et al., 2017

Shrinkage after gel application - volumetric %

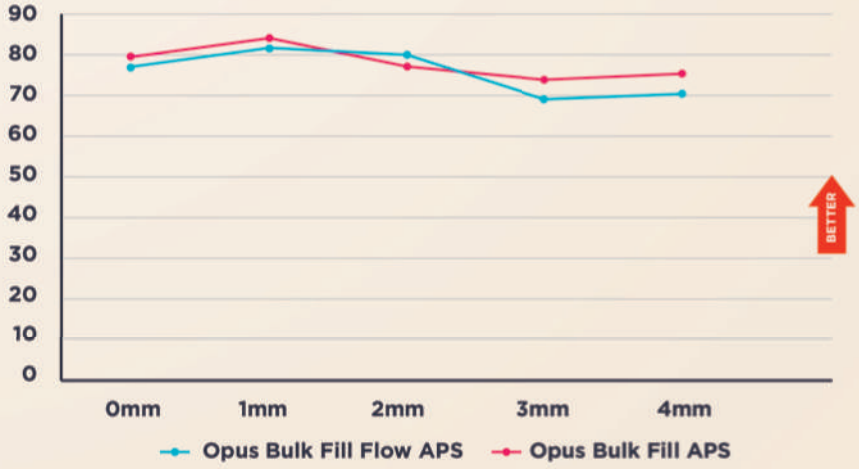


LOW SHRINKAGE

Materials with great volumetric shrinkage generate a higher level of stress on the tooth/adhesive/composite interface which may lead to functional damage to the restoration in time. Opus Bulk Fill APS and Opus Bulk Fill Flow APS obtained the lowest levels of volumetric shrinkage.

Source: Prof. Dr. Carlos José Soares et al., 2017

Cenversion degree - %



LOW SHRINKAGE

Materials with great volumetric shrinkage generate a higher level of stress on the tooth/adhesive/composite interface which may lead to functional damage to the restoration in time. Opus Bulk Fill APS and Opus Bulk Fill Flow APS obtained the lowest levels of volumetric shrinkage.

Source: Prof. Dr. Carlos José Soares et al., 2017
*Check the product's technical profile on fgmdentalgroup.com

7200055137 | 02 | 2021

FGM DENTAL GROUP

25 YEARS