

Posterior Direct Resin Restorations

*David S. Hornbrook, DDS, FAACD, FASDA, FACE
Diplomate, American Society of Dental Aesthetics*

OCCCLUSION DEMYSTIFIED

DR. DAVID HORN BROOK

DR. MARK MONTGOMERY



MARCH 3-5, 2017
SALT LAKE CITY, UT

OCTOBER 6-8, 2017
SAN DIEGO, CA

TUITION: \$1495
\$250 DISCOUNT FOR DENTISTS IN
PRACTICE LESS THAN 5 YEARS

REGISTER ONLINE
WWW.DAVIDHORN BROOK.COM
OR CALL 800 509 9251



WITH
SPECIAL GUEST
**STEVE
ANDERSON**



A PORTION OF TUITION FOR CROWN COUNCIL MEMBERS IS DONATED TO SMILES FOR LIFE

Do you have a system your whole team understands to diagnose, treat and present to patients based on occlusal disease?

This program is a 3 day investment in expertise, profitability and peace of mind. It is for those practicing real world dentistry, desiring to improve aesthetics, eliminate failures and predictably restore patients in ideal position.

www.uvdl.com

\$1495

(\$ 250 discount for new dentists)

TEST YOUR KNOWLEDGE...



What came first the decay or the abfraction? How often have you restored cases that look like this and didn't determine the cause?



Is this erosion, parafunctional wear, or bulimia?



What is the long-term effect of an anterior open bite on the posterior tooth anatomy?



Some think this is acid reflux and others think it is occlusal abfraction. **What is your diagnosis?**



How many times have you restored cases like this and never knew how to address the underlying cause?

WHAT YOU WILL LEARN

- The science behind tooth contacts and muscle harmony
- The 5 steps to functional success with every patient
- Hands on clinical records, recording bites and facebows for case planning
- How to accurately diagnose wear, severe wear and post treatment triggers
- Understand the 3 most critical factors in your new patient exam
- Deprogramming methods; when to use and why
- Diagnosing the asymptomatic patient
- How to avoid "red flags" that will compromise the outcome of a case
- How to establish Occlusal Vertical Dimension, when to make changes and why
- Hands on critical case finishing that will prevent post-treatment challenges
- Successful treatment planning and model evaluation
- Evaluation and deliberate occlusal equilibration, "stop chasing dots"

Functional Anterior Aesthetics Program

BRING YOUR **OWN** PATIENT
Give them the smile of their dreams!



This program consists of two weekends, 4 weeks apart where clinicians provide their own patient, and with the guidance of a clinical mentor, perform hands-on, preparation and cementation of approximately 8-10 anterior all ceramic crowns.

DR. DAVID HORN BROOK



DR. MARK MONTGOMERY



STEVE ANDERSON



SPECIAL GUEST

MAY 5-7 PREP WEEKEND
JUNE 2-4 SEAT WEEKEND
LOCATION: SALT LAKE CITY, UT

\$ 3995 per doctor includes one assistant
\$ 500 discount for dentists in practice less than 5 years
\$ 395 per additional team member
40 CE credits

REGISTER ONLINE WWW.DAVIDHORN BROOK.COM OR CALL 800 509 9251



A PORTION OF TUITION FOR CROWN COUNCIL MEMBERS IS DONATED TO

\$ 4900

(\$ 500 discount for new dentists)

Six Day, Live Patient Course

The Goal

The goal is to provide attendees with a unique hands-on, live-patient educational experience and the opportunity to explore various case scenarios. The combination of clinical, communication, marketing, and management skills addressed in this course will not only increase the enjoyment of dentistry, but will also create a level of clinical success and confidence never dreamt possible.



YOU WILL LEARN

The Nuances of Anterior Smile Design

- A complete understanding of adhesive dentistry: New materials and techniques for success
- Avoiding sensitivity and eliminating microleakage with bonded restorations
- Case planning, both aesthetically and functionally, of anterior restorative dentistry
- Preparation steps that follow a predictable and systematic approach
- Understanding functionally why things work, while others fail
- A thorough understanding of the new restorative materials and their applications
- Veneer provisionalization that's amazingly fast and aesthetic
- Laboratory communication to ensure success
- Cementation principles designed for predictable placement of multiple units
- Creative marketing to attract the "aesthetic" patient
- Case Acceptance

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March 19-21 Prep Weekend
May 3-5 Seat Weekend

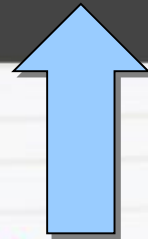
- ❖ *Private Practice, San Diego, CA*
- ❖ *Educator on Aesthetics, Implants, Materials, Smile Design, Occlusion, Dental Photography*
- ❖ *Clinical Director of Education and Technology, Utah Valley Dental Lab*

david@hornbrook.com

www.davidhornbrook.com

Cementation Guides

- ❖ *Anterior adhesive cementation*
- ❖ *Posterior adhesive cementation*
- ❖ *Posterior non-adhesive (Luting) cementation*



It's time to expect more from your lab

WELCOME TO UTAH VALLEY DENTAL LAB

SEND A CASE



Artistry

Although our declaration to the dental profession is "It's time to expect more...", superb artistry will always be our



Processes

How are our processes relevant to what's important to your practice? Every time we develop a process we ask ourselves, "How



Relationships

Henry Ford said, "If I had asked people what they wanted, they would have said 'faster horses.'" We've assumed a

OUR WORK

OUR PRODUCTS

RESOURCES + FORMS

NEWS + EVENTS

SEND A CASE

FAQ

Dental Videos

Downloads

Implant Tutorials

Hornbrook Cementation Guides

Hornbrook Resources

It's no expect me

WELCOME TO UTAH VALLEY D

SEND A CASE



Hornbrook Resources

Smile Design Guide

Step-by-step smile design guideline by Dr. David Hornbrook.

Please click [Step by step smile design](#) to download.

Bite Records

Bite records for large restorative cases and full mouth rehabilitation.

Please click [here](#) to download.

www.uvdl.com



Utah Valley

Dental Lab

www.utahvalleydentallab.com

800-927-6967

Posterior Resin Restorations

- ❖ *Traditional concerns*
 - ❖ *Poor wear resistance*
 - ❖ *Time consuming to place*
 - ❖ *Sticky and difficult to manipulate*
 - ❖ *Difficult to get great contacts*
 - ❖ *High shrinkage stress*

Ideal Posterior Composite

- ❖ *Condensable/flowable*
- ❖ *Low shrinkage*
- ❖ *Bulk fill*
- ❖ *Great wear resistance*

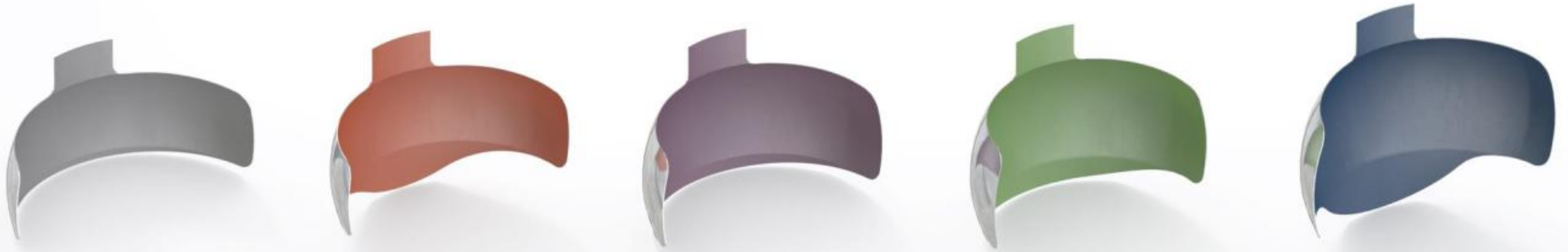
Predictable Matrix System

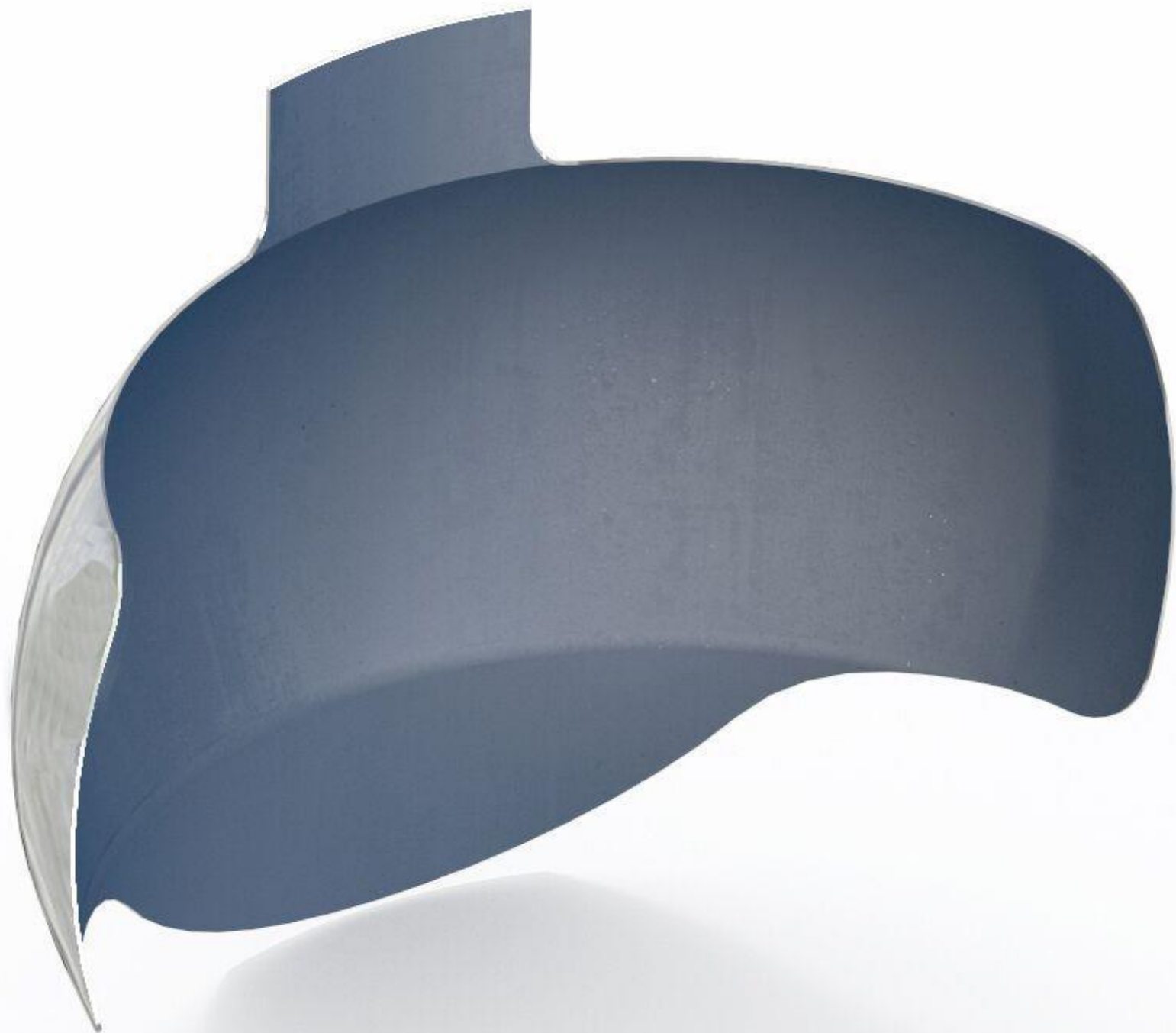
Garrison

Composi-Tight 3D XR

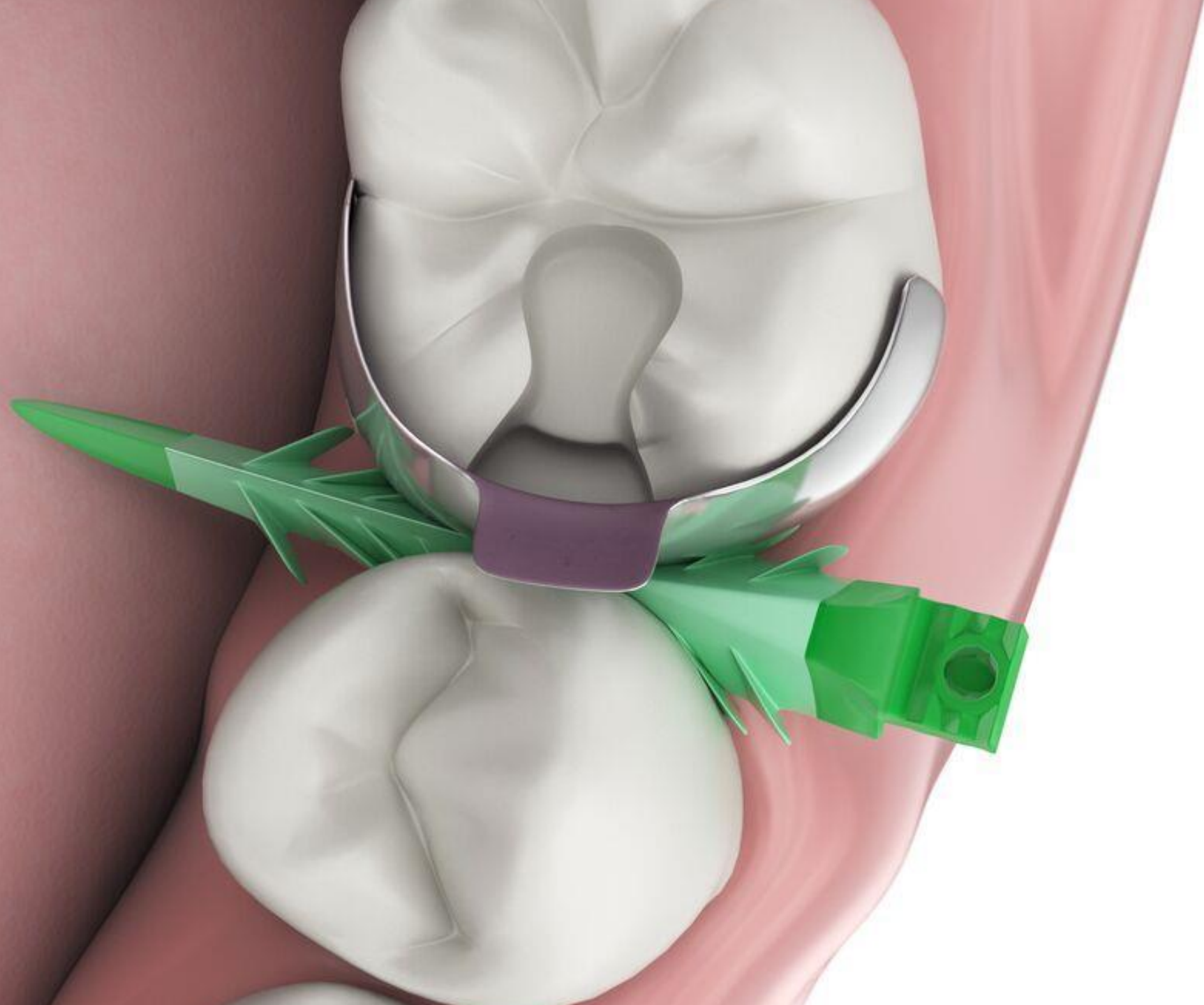


3D Fusion Bands

















Current Trends

- ❖ *Universal adhesives*
- ❖ *Bulk Fill Resins*



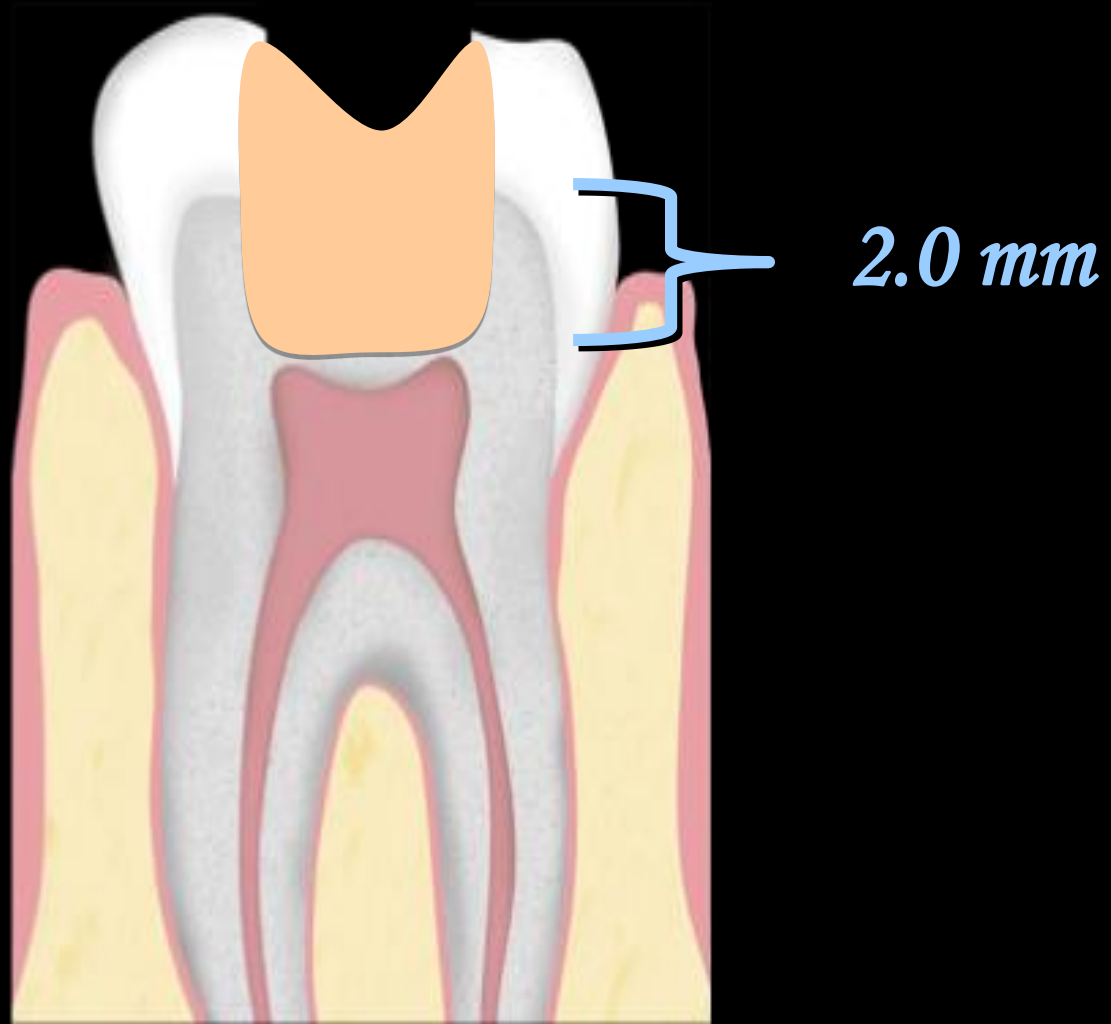
Universal Adhesives

- ❖ *Self-etch*
- ❖ *Select-etch*
- ❖ *Total-etch*

Bulk Fill Composites

- ❖ *EvoCeram Bulk Fill (Ivoclar)*
- ❖ *Reveal Bulkfil (Bisco)*
- ❖ *Filtek One Bulk Fill (3M)*
- ❖ *Venus Bulk Fill (Heraeus)*
- ❖ *SureFill (Dentsply)*
- ❖ *SonicFill (Kerr)*

Traditional Composite Resins



Clinicians Report

Materials

Filtek Supreme Ultra (3M/Espe) Control	3mm
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SureFil SDR Flow (Dentsply)	5mm
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Venus Bulk Fill (Heraeus Kulzer)	4mm
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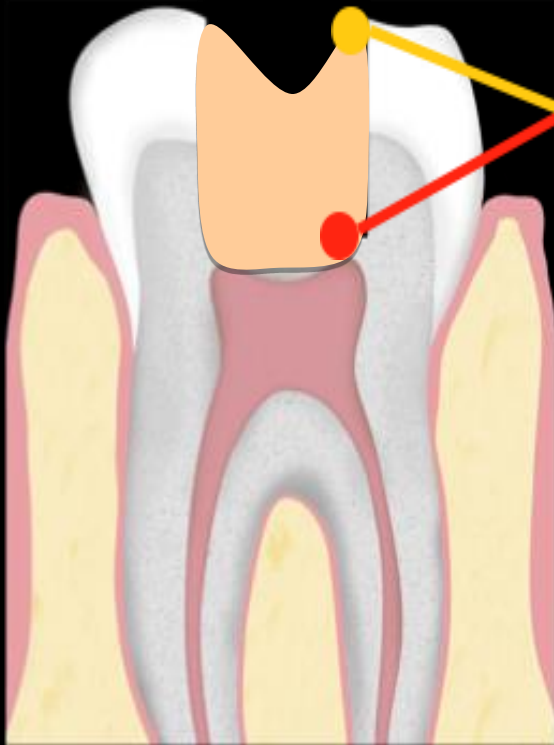
Tetric EvoCeram Bulk Fill (Ivoclar)	4mm
--	------------

SonicFill (Kerr)	6mm
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“Correlation of bottom-to-top surface microhardness and conversion ratios for a variety of resin composite compositions”

Oper Dent 2004; 29(6):698-704

Bouschlicher MR, Rueggeberg FA, Wilson BM

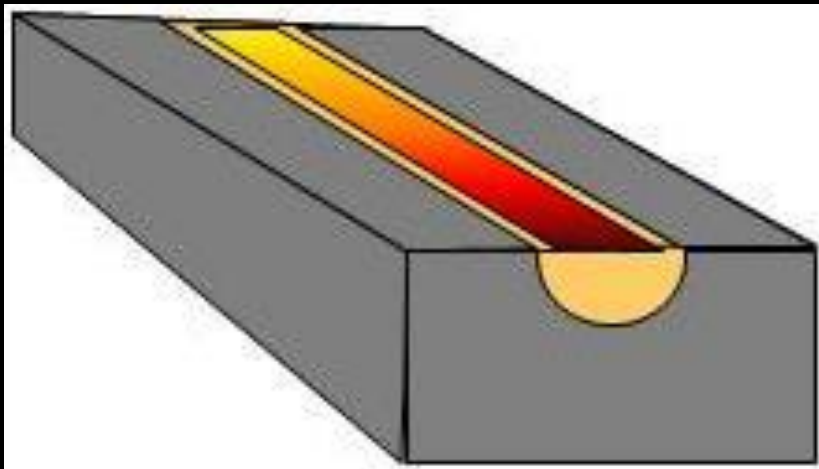
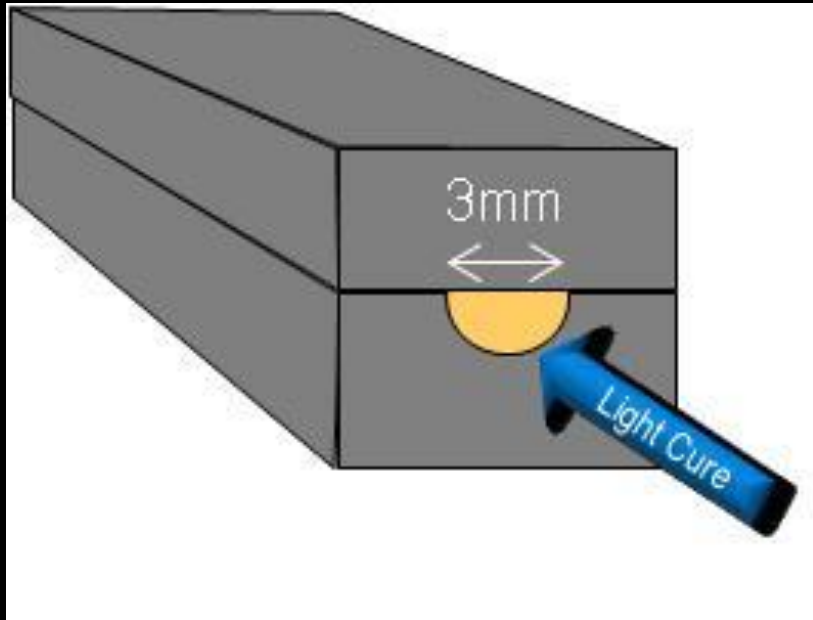


Measure Hardness
at Bottom

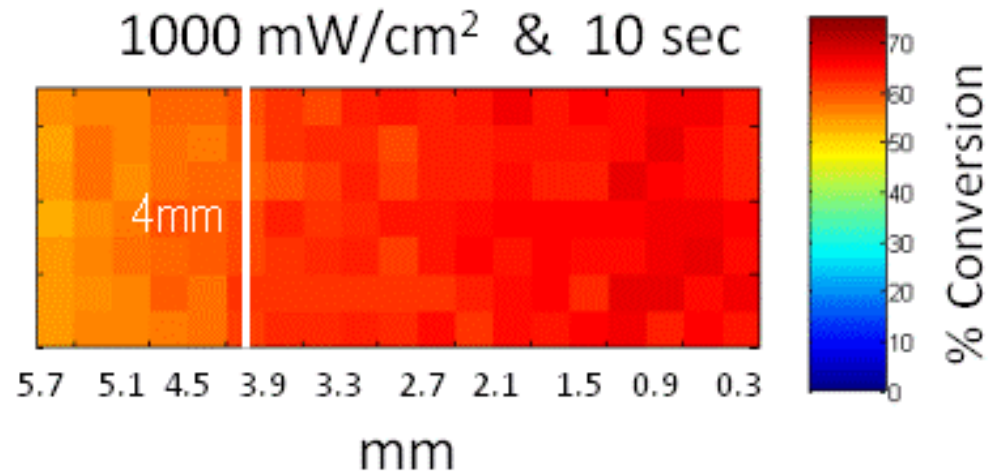
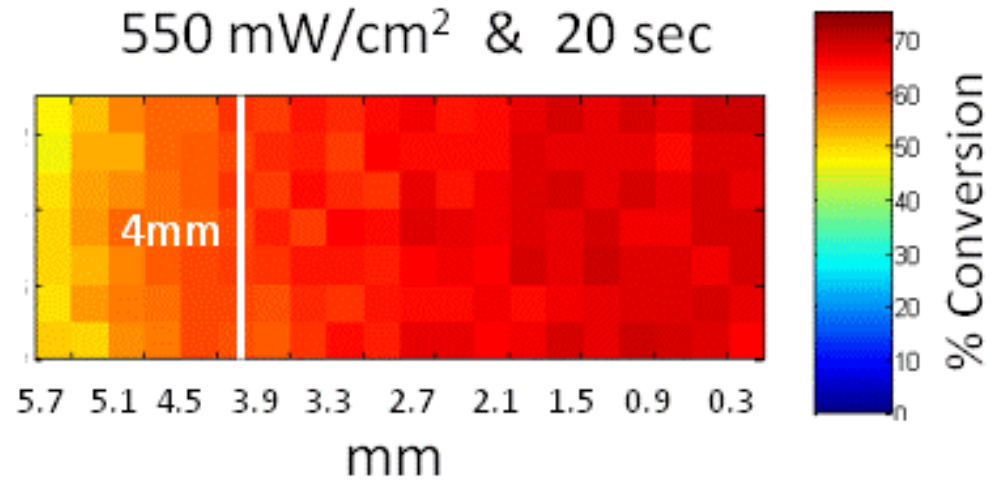
Measure Hardness
at Top

= 80% or
more
(fully cured)

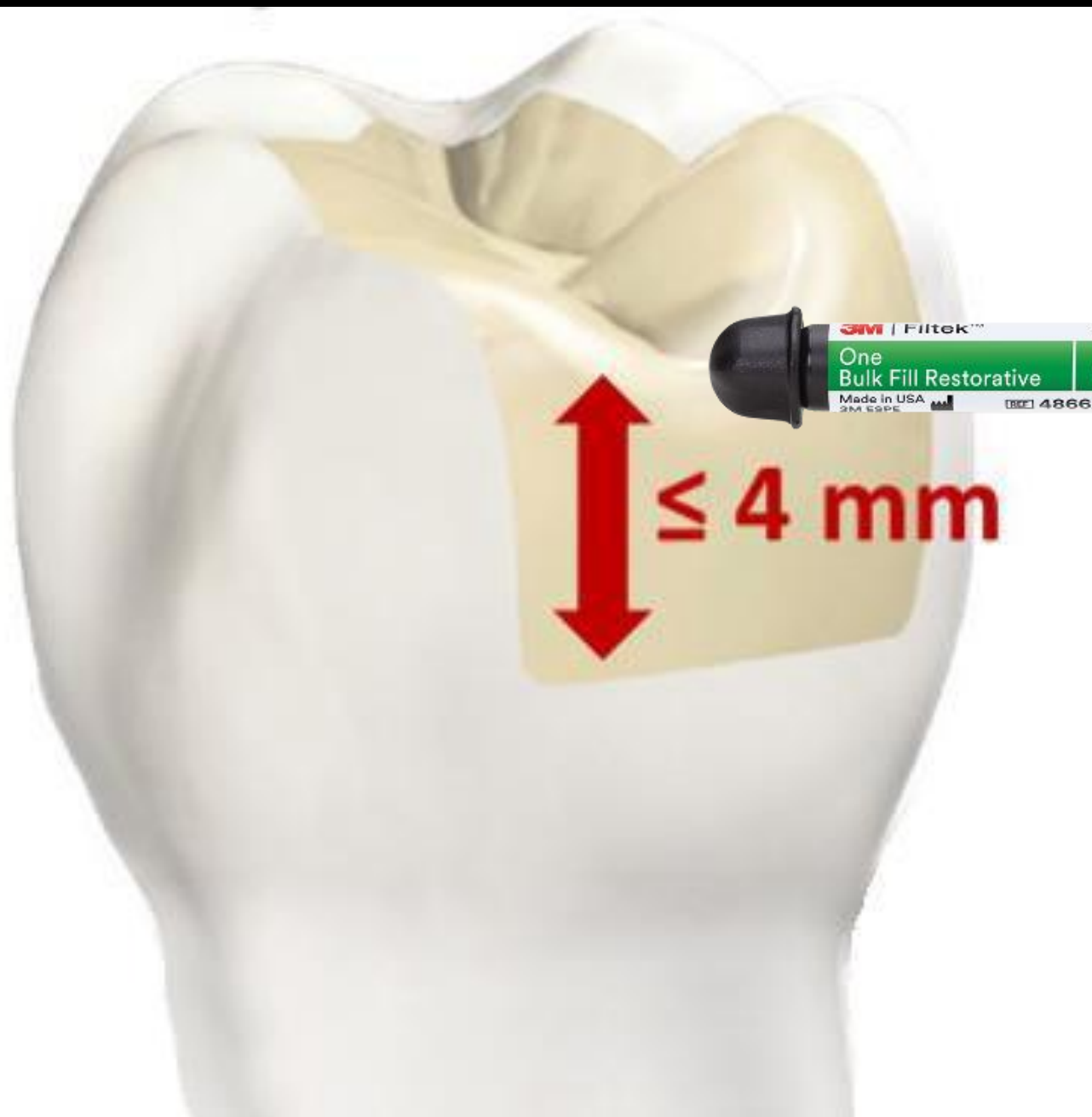
Depth of Cure – Ramen Spectroscopy



Filtek™ Bulk Fill Flowable

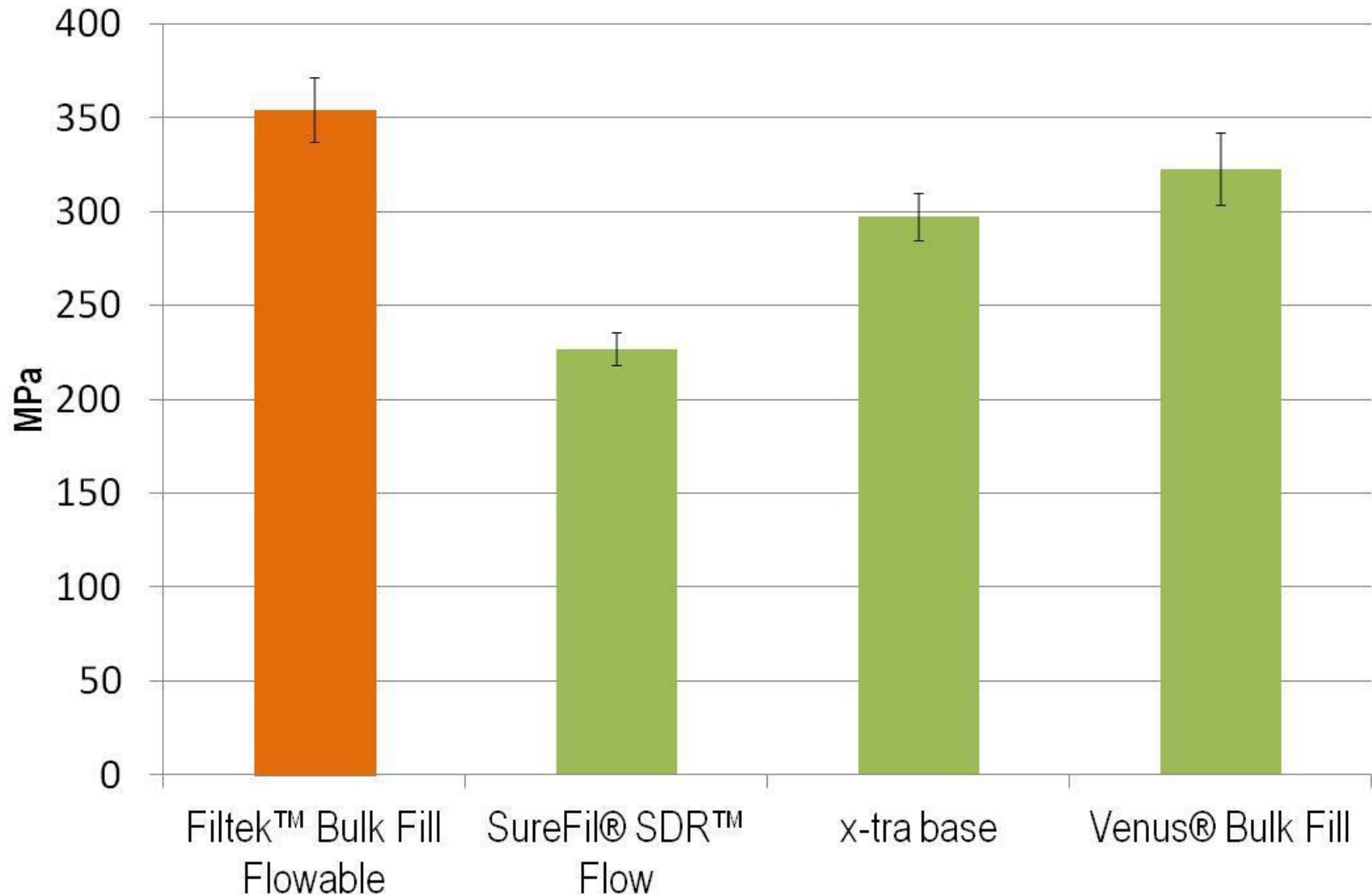


*Both curing conditions
yield > 90% of maximum
conversion at 4mm*

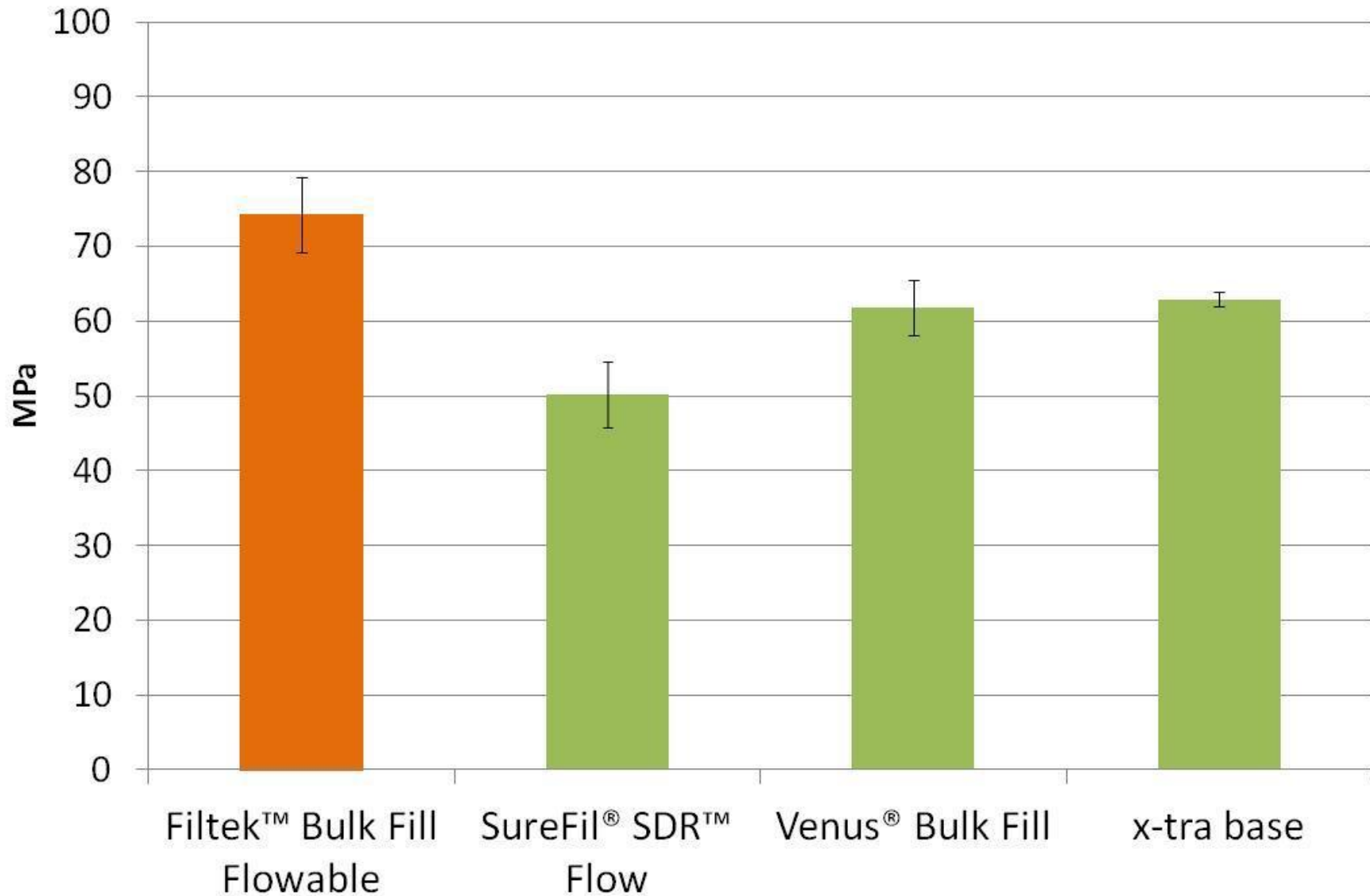




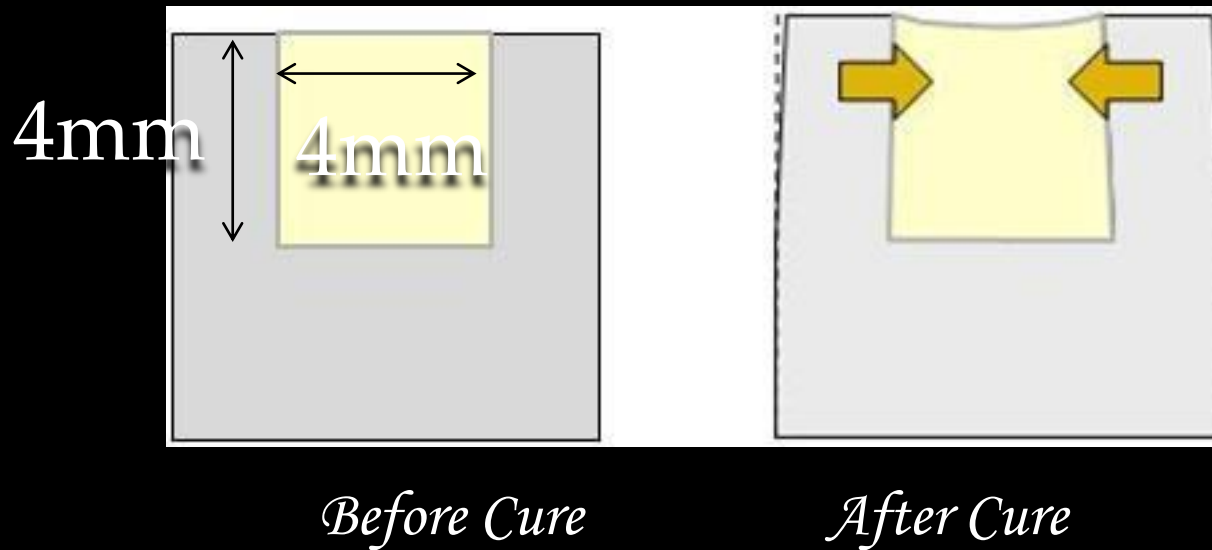
Compressive Strength – Bulk Fill Flowable Restoratives



Diametral Tensile Strength– Bulk Fill Flowable Restoratives

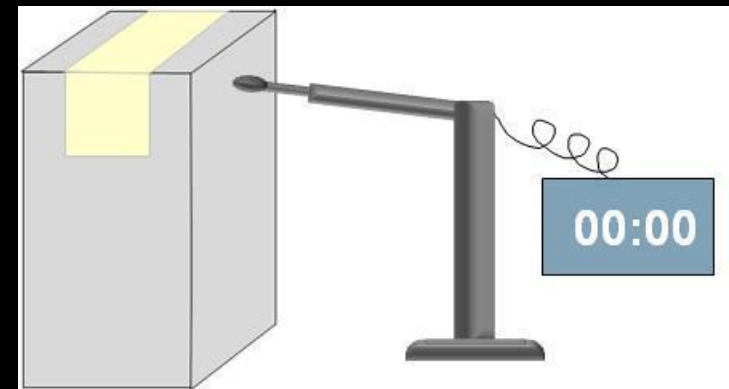


Polymerization Stress – Cusp Deflection Measurement



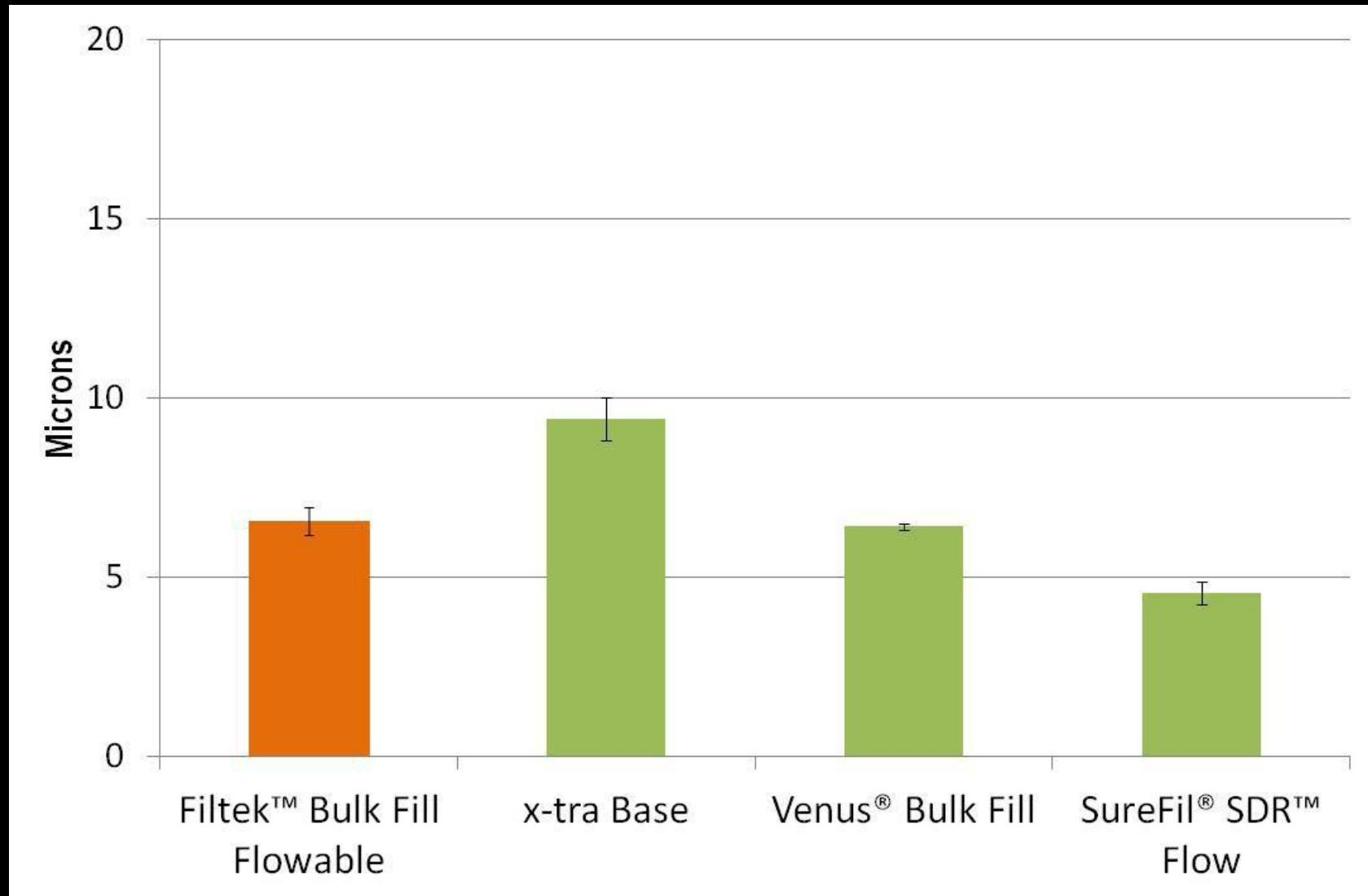
Aluminum mold

- ❖ Similar stiffness to enamel
- ❖ Composite is bonded to mold after sandblasting, silane treatment and applying a conventional dental bonding adhesive.
- ❖ Deflection of “cusp” is measured after curing with a linear displacement transducer



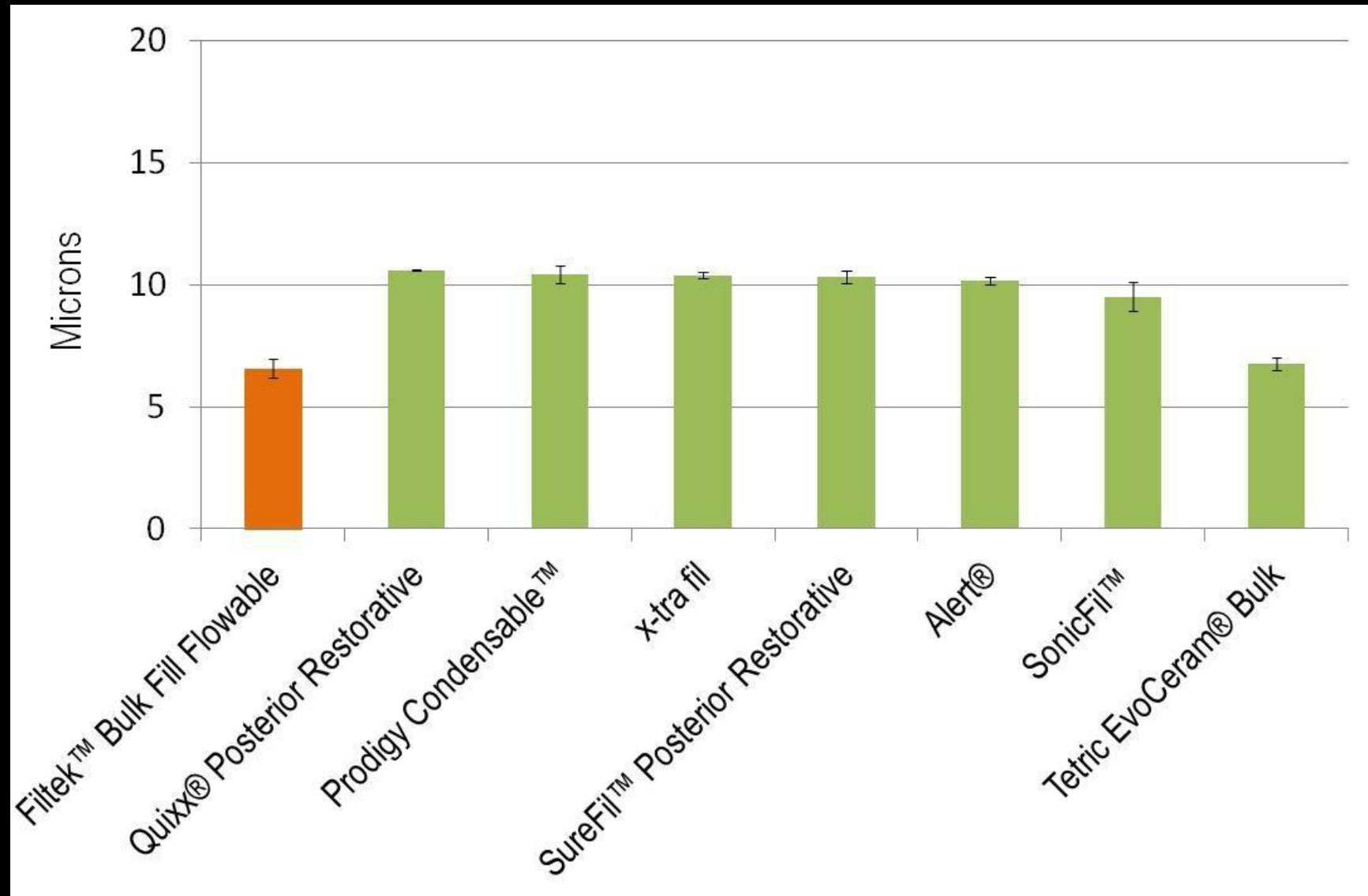
Polymerization Stress– Bulk Fill Flowable Restoratives

Cusp deflection after curing 4mm increment



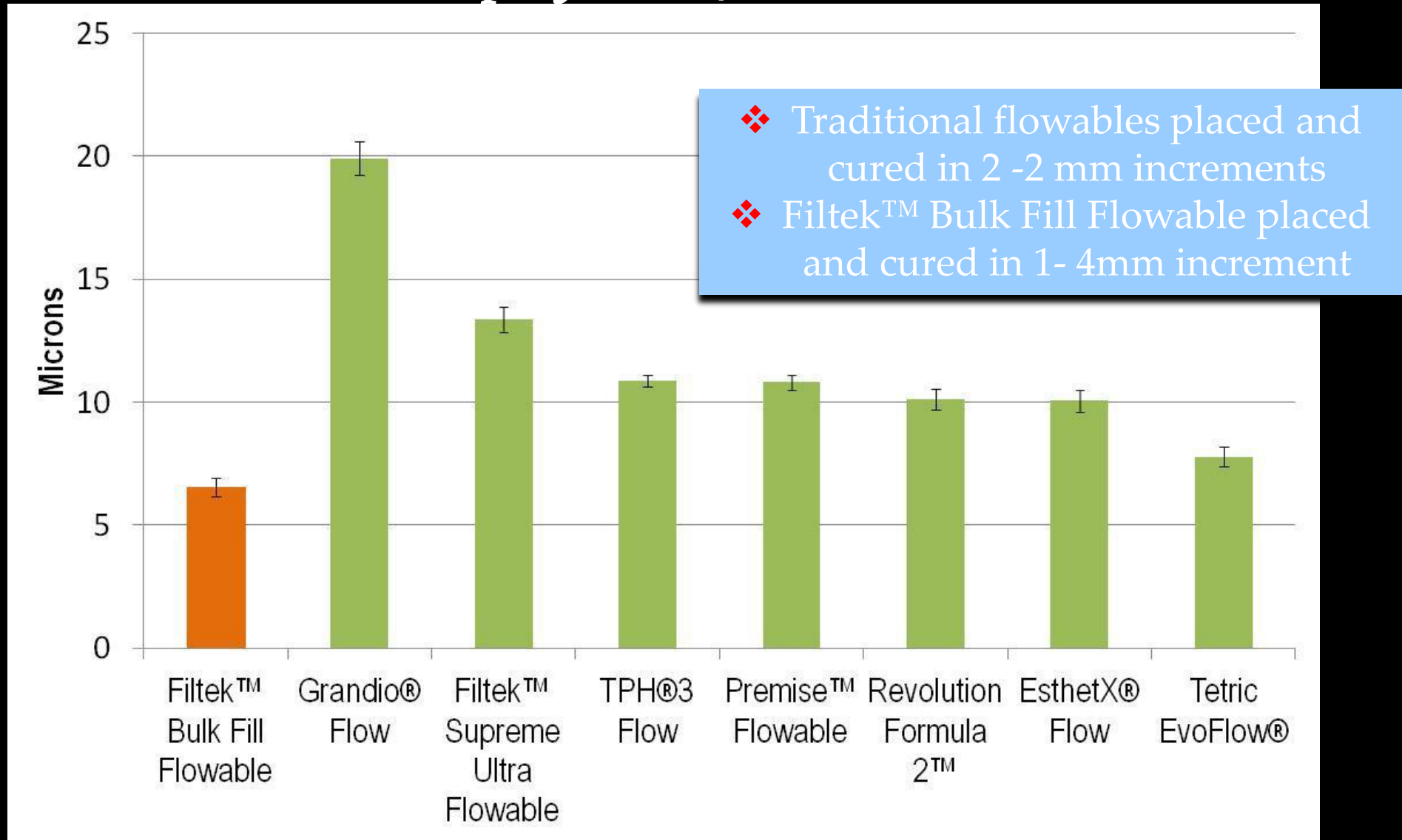
Polymerization Stress– Bulk Fill Posterior Restoratives

Cusp deflection after curing 4mm increment



Polymerization Stress– Traditional Flowable Restoratives

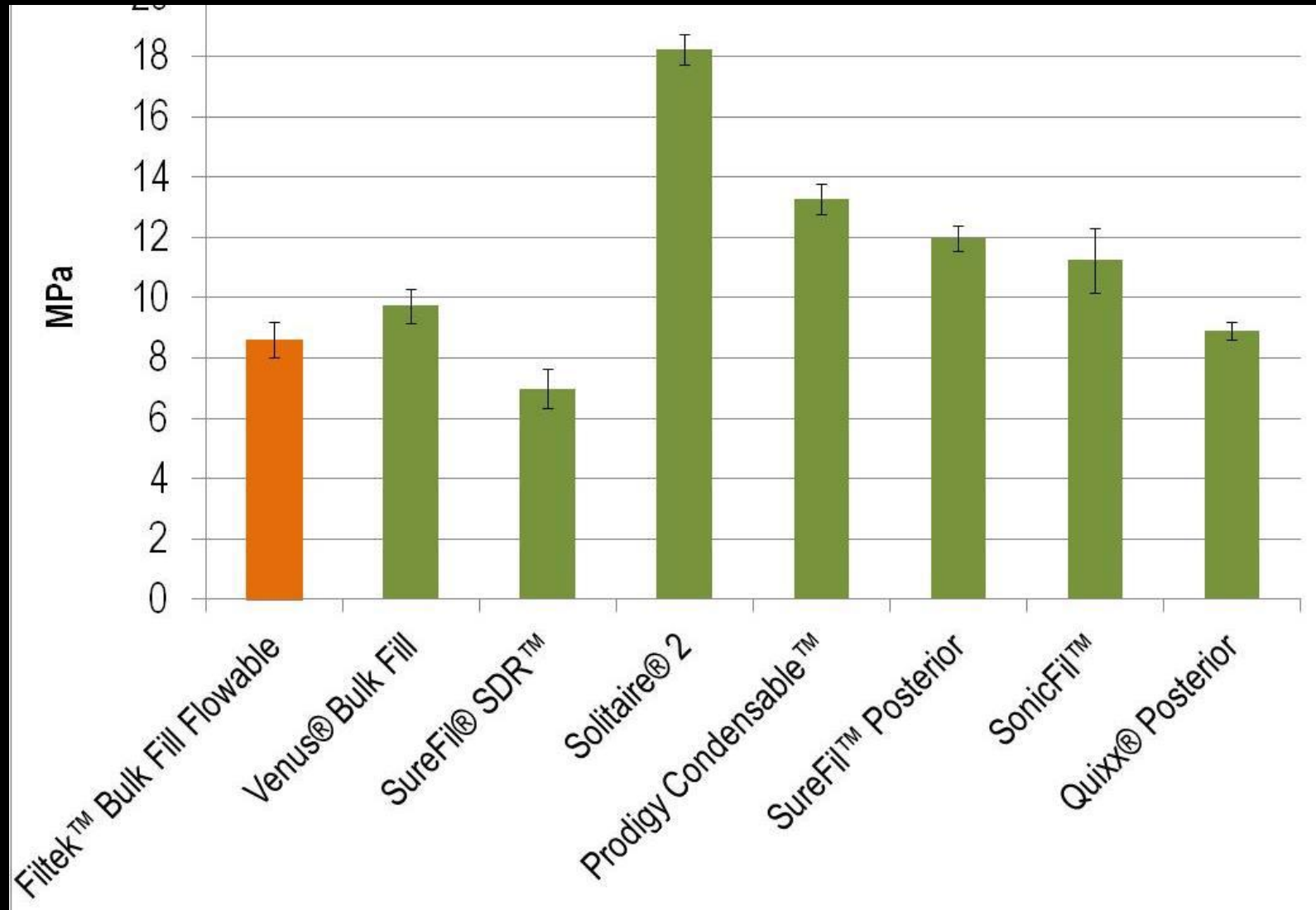
Cusp deflection / microns



Polymerization Stress

Flowable Bulk Fill

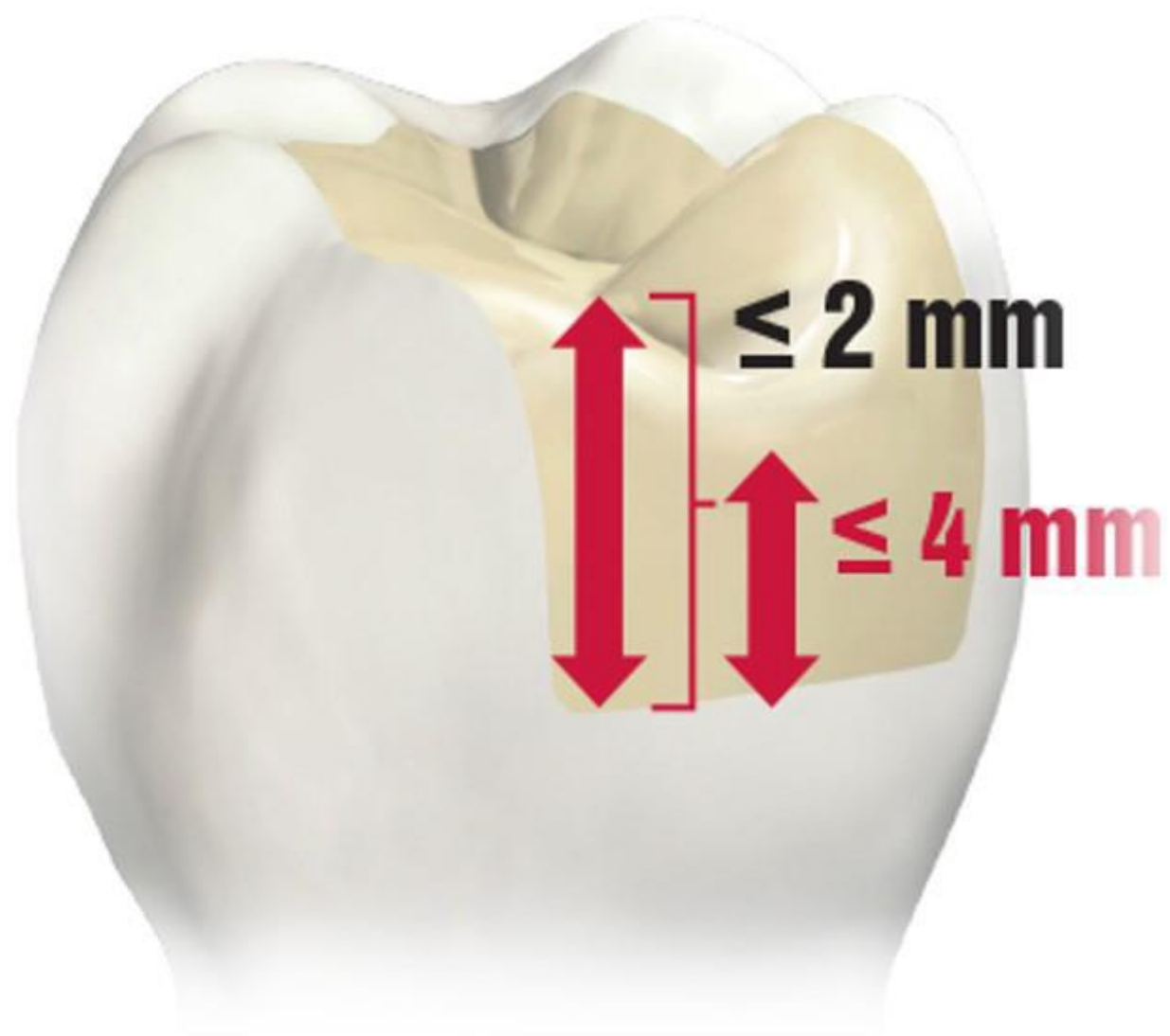
Posterior Bulk Fill Composite



Oregon Health Science University

Bioman Device (Watts et.al., Dent Mat, 2003)

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3M™ Filtek™ Bulk Fill
Flowable Restorative







Place matrix strips

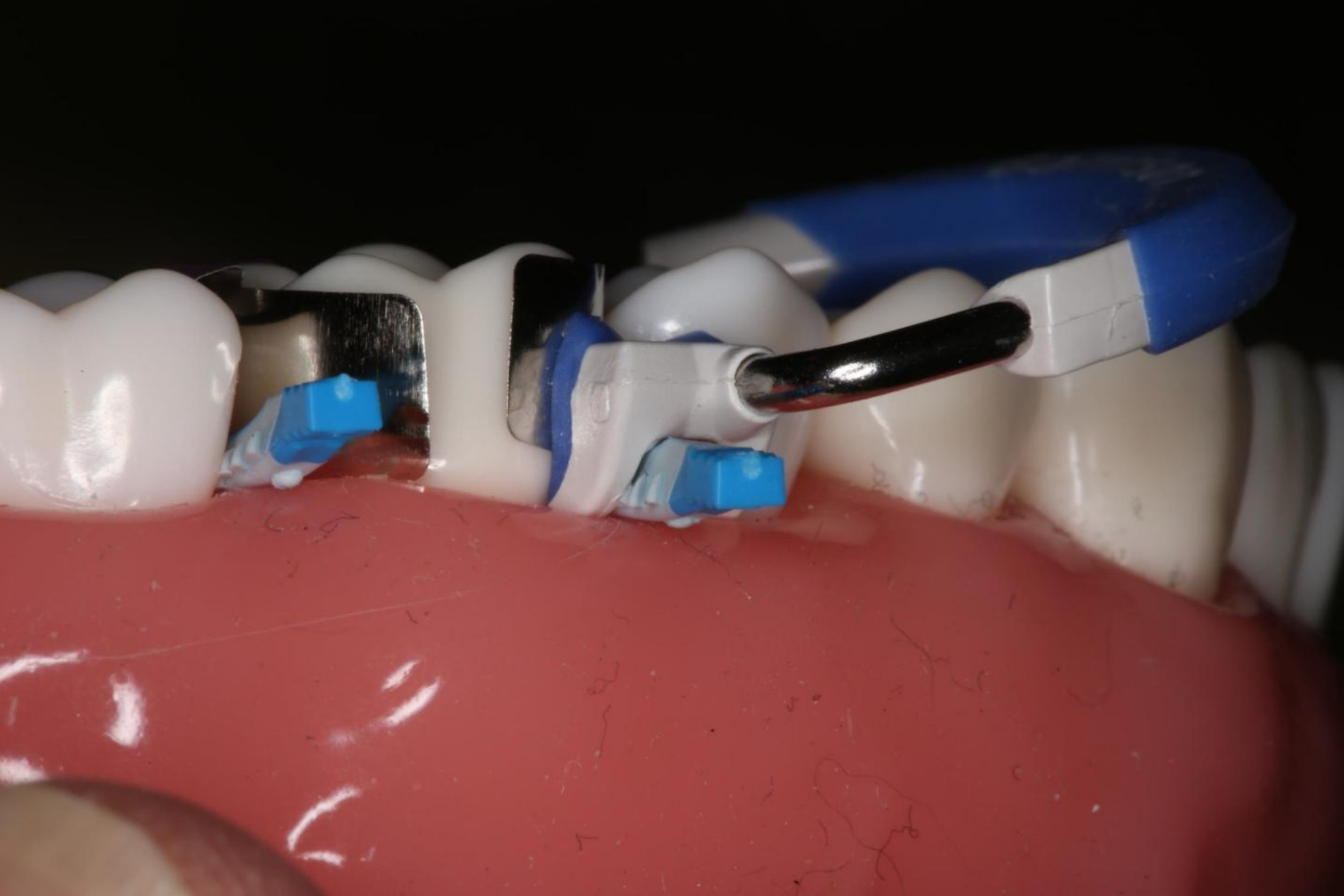
A close-up photograph of a dental procedure on a model. A pair of pliers is holding a blue, serrated wedge and positioning it between the second premolar and the first molar. The first molar has a large black filling. A purple wedge is already placed between the first premolar and the first molar. The text "Place wedges" is written in a white, cursive font with a black outline, pointing towards the blue wedge. The model is mounted on a red base.

Place wedges



Grab ring with forceps







Put rings into place over wedges



TheraCal (Bisco)



Garrison





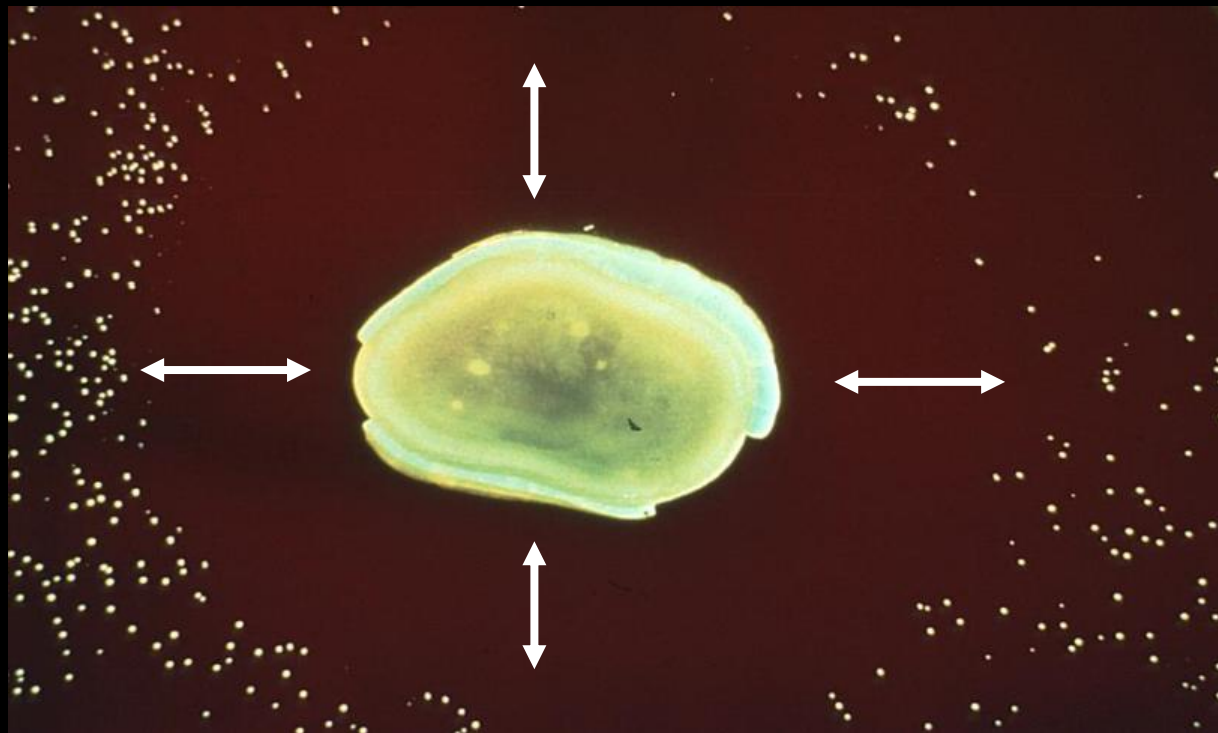
Etch enamel with phosphoric acid





Semi-gel Etchant w/ BAC

Journal of Dental Research 73, 1994, Abstract of Papers pg. 226 Abstract 995
Residual Antimicrobial Action of Benzalkonium Chloride-Containing Etchant
Chan DCN, LOW W



Zone of inhibition

Etch dentin with H_3PO_4 for 10 seconds (Optional)



Rinse and apply Hema/water/glutaraldehyde solution



- ❖ *Gluma (Heraeus)*
- ❖ *G 5 (Clinicians Choice)*
- ❖ *MicroPrime G (Danville)*
- ❖ *Telio Desensitizer (Ivoclar)*

Effect of Remoistening

Water vs. Desensitizer/Rewetting Agent

Product	Dentinal Bond
<i>Water-blotted dry</i>	22.8
<i>Water- wet</i>	19.2
<i>Gluma Desensitizer</i>	22.3
<i>HurriSeal</i>	20.1
<i>Telio CS Desensitizer</i>	25.8
<i>MicroPrime</i>	20.1
<i>Aqua-Prep</i>	18.1



Telio CS Desensitizer

Soft Touch™ Single Dose

Desensitizing agent
Desensibilisierer

ivoclar
vivadent:

2°C
36°F



28°C
82°F

0.1 g

CE 0123



harmful /
Gesundheits-
schädlich

A close-up photograph of a dental procedure on a maxillary model. A yellow tip is being used to blot dry excess solution from a prepared tooth. The tooth is held in a metal clamp with green and white plastic components. A green band with the word "Garrison" is visible on the left. The background is a red surface.

Blot dry excess solution



Apply multiple layers of primer



A close-up photograph of a dental model. A central tooth is shown with a yellow filling material applied to its occlusal surface. A white marker is positioned to the left of the tooth. The tooth is surrounded by green and white plastic blocks, some of which have the word "Gar" visible. A blue plastic block is also present. The entire setup is on a red base. The text "Air dry thoroughly" is overlaid on the image.

Air dry thoroughly

A close-up photograph of a dental curing light being used on a tooth model. The light is a handheld device with a black body and a clear, curved protective shield. A bright blue light is visible through the shield, directed at a white, tooth-shaped object. The tooth is mounted on a green and white plastic base. To the right, another similar tooth is visible. The background is dark and out of focus.

*Polymerize for 10 seconds as quickly
after drying as possible*

*Using periodontal probe, measure
deepest portion of preparation*





Use Bulk-Fill flowable

3M ESPE | **Filtek™** Bulk Fill
Flowable Restorative 2g
REF 4862A2
3M ESPE, Dental Products
2510 Conway Avenue
! Rx Only



Inject flowable into box forms and pulpal floor

A close-up photograph of a dental procedure on a model. A green plastic band with the word "Garrison" in white is positioned around a central tooth. The band is held in place by two purple clips. The tooth is surrounded by other teeth and a metal archwire. The background is a red surface.

Allow to sit for ±5 seconds

A close-up photograph of a dental procedure on a model. A black curing light is being used to cure a white, tooth-shaped restoration. The restoration is held in place by a green and white plastic device. The background is a red surface. The text "Light polymerize for 20 seconds" is overlaid on the image.

Light polymerize for 20 seconds

Place Filtek One Bulk Fill into CR syringe



A close-up photograph of a dental procedure on a tooth model. A black dental syringe with 'Filttek' and '0.18' printed on it is injecting a yellowish resin into a prepared cavity. The tooth is held in a metal clamp with green and white plastic components. A purple wax strip is visible on the side of the tooth. The background is a red surface.

Inject resin into preparation over the flowable



Condense and carve resin



CompoRoller™
Assorted Kit Art. No. 5300



1/Art. No. 5301

Kerr
1/Art. No. 5308

7/Art. No. 5307

7/Art. No. 5306

Art. No. 5305

7/Art. No. 5304

7/Art. No. 5303

7/Art. No. 5302

KerrHawe SA
6934 Bioggio/Switzerland
www.KerrHawe.com
00800 41 05 05 05





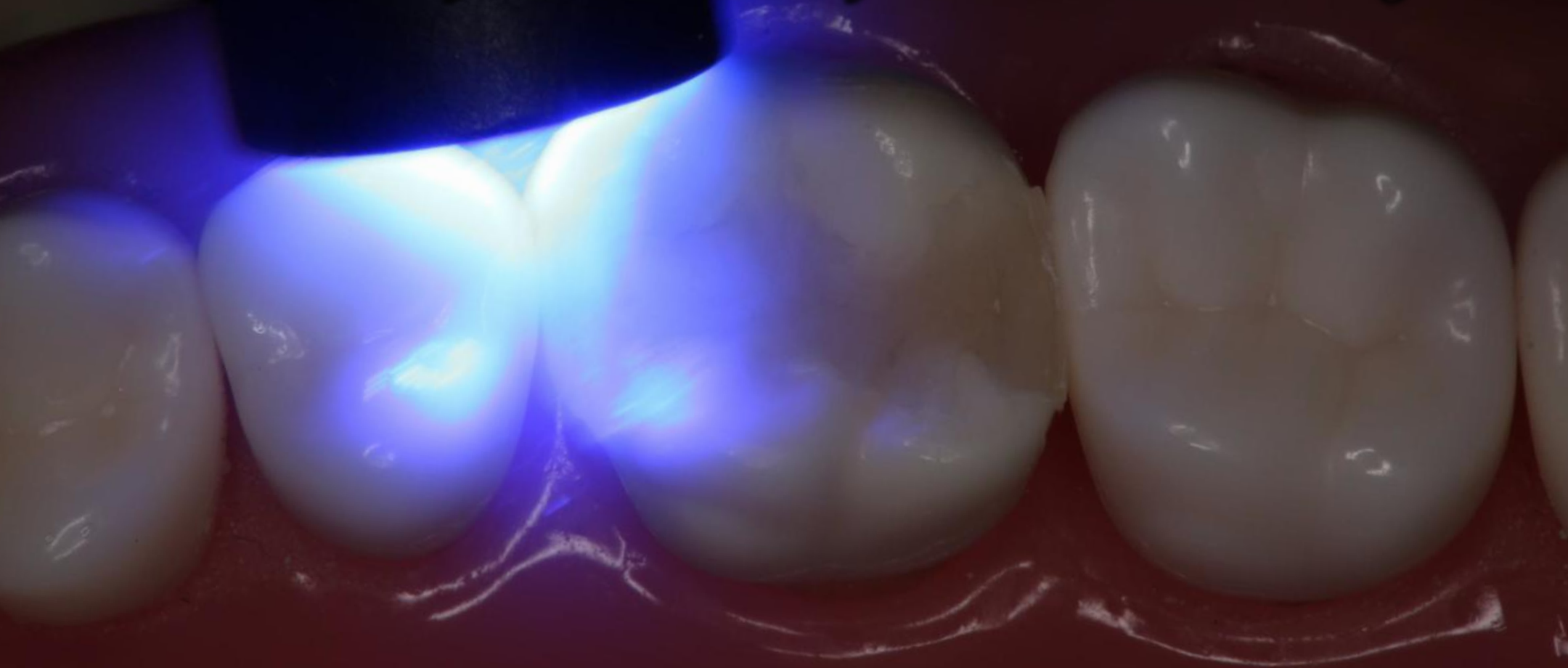
A close-up photograph of a dental procedure on a model. A black curing light is directed at a tooth preparation, which is held in a green and white plastic fixture. The light is emitting a bright blue glow. The text "Light polymerize for 20 seconds" is overlaid on the image. The background shows a red dental model and a green curved surface with the word "Trison" partially visible.

Light polymerize for 20 seconds

Garrison



*Remove matrix strips/rings, and wedges and polymerize
interproximal for 10 seconds from buccal and lingual*





A close-up photograph of a dental model showing a maxillary arch with several teeth. A sharp dental scaler or Bard Parker blade is being used to remove excess material from the gingival margin of a central incisor. The instrument has a green handle and a dark metal blade. The text is overlaid on the image in a white, italicized font.

*Use sharp scaler or
12 Bard Parker blade to remove excess*



Recontour marginal ridges as needed using Sof-flex disc





*Adjust occlusion and define anatomy
using diamond with water*

Sof-lex Diamond Polishers *(3M)*







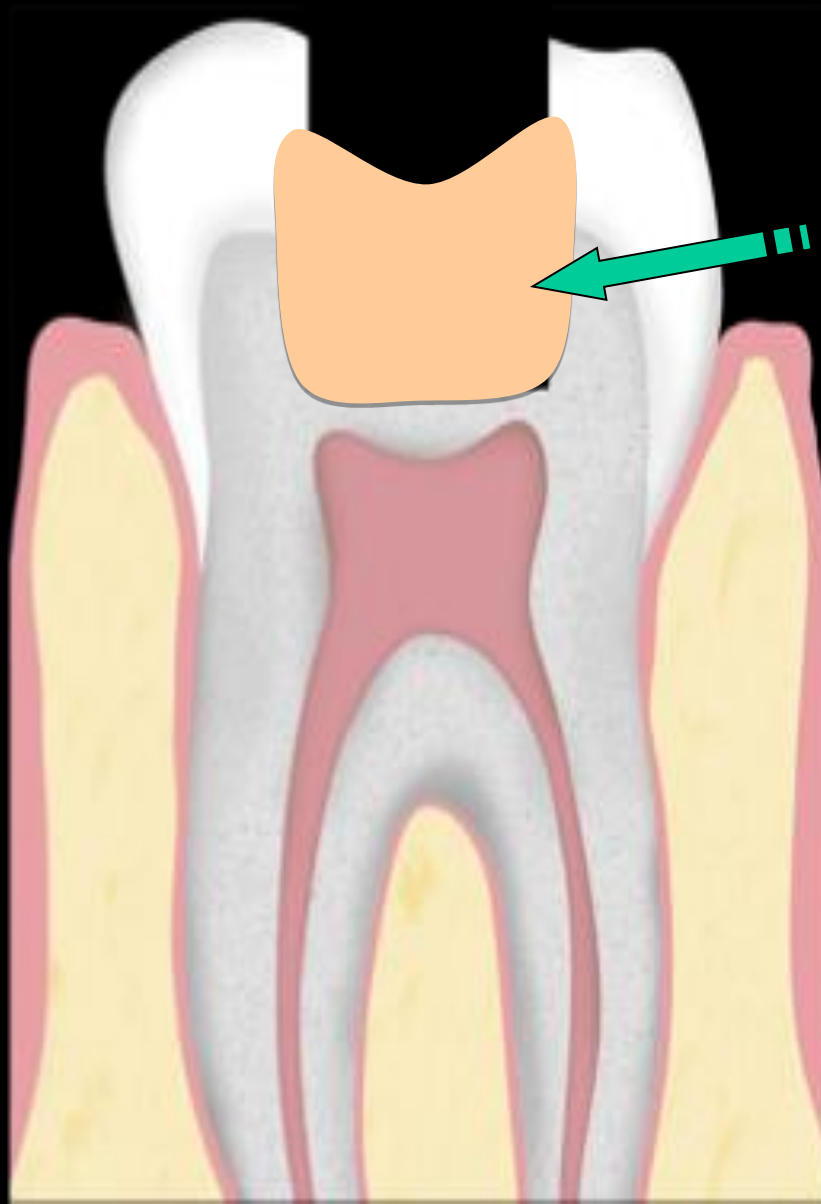












SonicFill

Kolor + (Kerr)



Kolor +



bulk Fill

