Class II Composites:

Practical, Predictable Success

Presented by

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FIFTH QUARTER SEMINARS

Yosemite, California
November 1, 2013

MATERIALS LIST
CLASS II POSTERIOR Direct Resin Restorations

1	**Rubber Dam Placement Technique Video:**	Coltene/Whaledent
2	**Medium Rubber Dam:**	Coltene/Whaledent
3	**Rubber Dam Clamps:**	BW (#A778703), DW (#A778705), NW (#A77388) and PW (#A77389) by Dentsply Professional
4	**Matrices:**	Omni Matrix (Ultradent www.ultradent.com), Pinch matrix (Garrison Dental Solutions www.garrisondental.com) or ConvexiT (Clinical Research Dental www.clinicalresearchdental.com)
5	**Sectional Matrices:**	Contact Matrix (Danville Materials www.danvillematerials.com), V3/ V4 systems (Triodent - www.ultradent.com), Composi-tight (Garrison Dental Solutions)
6	**Wedge Guards:**	Wedge Guard (Triodent - www.ultradent.com) or Fender Wedge (Garrison Dental Solutions)
6	**Placement Instruments:**	Posterior Composite Placement Set according to Dr. Ron Jackson (#AERJK) by American Eagle, Inc. www.am-eagle.com
7	**Contact Instruments:**	Contact Pro (C.E.J. (www.cejdental.com), Proform (Garrison Dental Soluions) or TriMax (AdDent www.addent.com)
8	**Gel etchants:**	Select HV (Bisco - www.bisco.com) or Ultraetch (Ultradent)
9	**Desensitizers:**	MicroPrime G(Danville Materials), Gluma Densensitizer (Hereaus Kulzer), Telio CS Desensitizer (Ivoclar), G5 by Clinical ResearchDental
10	**Chlorhexidine:**	Consepsis with Blu-max Infusor tip (Ultradent) or Cavity Cleanser (Bisco)
11	**3 Step Total-etch:**	Optibond FL (Kerr), Scotchbond MP or Scotchbond MP Plus (3M/Espe)
12	**2 Step Total-etch:**	Prelude (Danville Materials) ,Optibond Solo Plus (Kerr), All Bond TE (Bisco), ExciteF (Ivoclar), XP Bond (Dentsply), Single Bond Plus (3M/Espe), PQ1 (Ultradent), Gluma Comfort Bond (Kulzer)
13	**2 Step Self-Etch:**	Prelude (Danville Materials), Optibond XTR (Kerr), All Bond SE (Bisco), AdheSE (Ivoclar), Clearfill SE Protect (Kuraray)
14	**New Universals:**	Optibond XTR (Kerr), All Bond Universal (Bisco), Scotchbond Universal (3M/Espe), Peak Universal (Ultradent), Prime & Bond Elect (Dentsply), FuturaBond U (Voco)
15	**Contemporary Layered Composite Resins:**	Premise or Herculite Ultra by Kerr, Empress Direct (nano-microhybrid) by Ivoclar, Esthet·X HD by Dentsply, Filtek Supreme Ultra by 3M/Espe, Vit-l-escence by Ultradent, etc.
16	**"Bulk Fill" Resins:**	SureFil SDR Flow by Dentsply, Filtek Flow Bulk Fill by 3M/Espe, VenusFlow Bulk Fill by Heraeus Kulzer, X-tra Base by Voco, Tetric EvoCeram Bulk by Ivoclar Vivadent, X-tra Fill by Voco
17	**Single Fill Posterior Composite System:**	Sonicfill by Kerr
18	**Finishing burs:**	7404, 7406, 274-16
19	**Finishing discs & strips:**	Optidisc by Kerr, Softlex XT by 3M/Espe
20	**Finishing points & cups:**	ProGloss by Axis, Optrapol by Ivoclar, Jazz 1-step by SS White, Soflex Spiral by 3M/Espe,etc.
21	**Magnification Loupes:**	Orascoptic Research/Kerr (www.orascoptic.com)
22	**Fiberoptic Illumination:**	Discovery by Orascoptic

1990 – 94% of Dentists amalgam primary posterior filling material

2010 – Posterior Composite Resin Restorations exceed amalgam fillings by 2:1 (Insurance Data, Limoli & Associates)

1/3 of Dentists DON'T use Amalgam

"Clinical Effectiveness of Direct Class II Restorations – A Meta-Analysis"

Heintze SD, Rousson V
J Adhes Dent 2012; 14(5):407- 431

Out of 373 Clinical Studies
59 met Inclusion Criteria.

Conclusion:

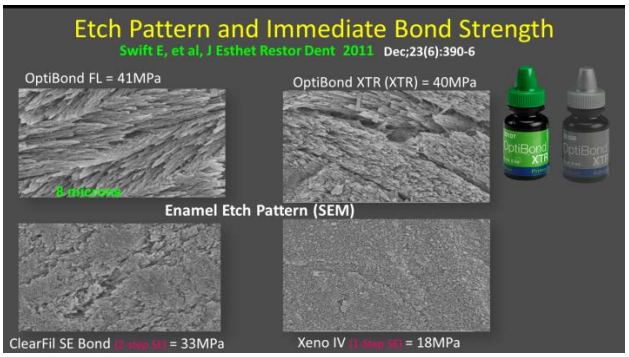
"composite success rate
90% at 10 years,
which was **not different** from
that of Amalgam"

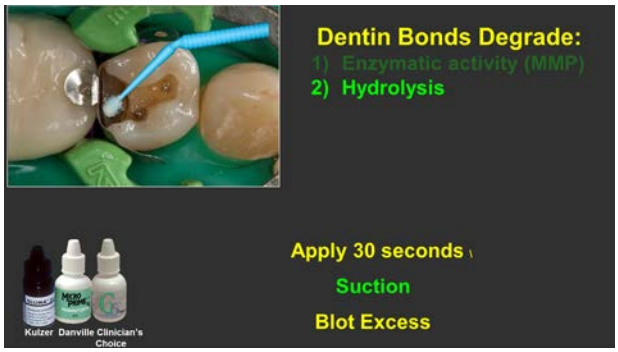
"Update: Bisphenol A in Dental Materials"

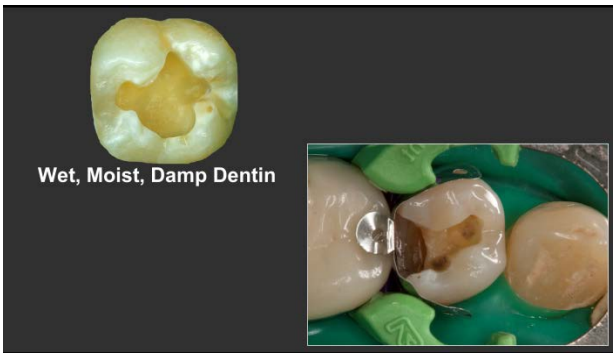
Gruniger SE, Tiba M, Koziol N
ADA Professional Product Review Council on Scientific Affairs
March 2013, Vol. 8 Issue 1,pp. 2-5

Conclusions:

1. BPA is NOT an added ingredient in dental composites or sealants currently on the market
2. Trace amounts of BPA present in raw bis-GMA are a residue of its manufacturing process.
3. … BPA can be detected in dental products containing bis-GMA, the potential exposure level is at least 500,000 times lower than EPA acceptable daily exposure limit for adult humans.



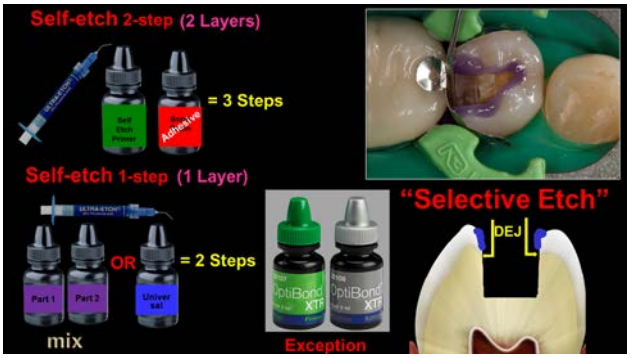




Intensity of quartz-tungsten-halogen light curing units used in private practice in Toronto
- El-Mowafy OM, El-Badrawy WA, Lewis DW, et al. JADA 2005; 136: 766-773

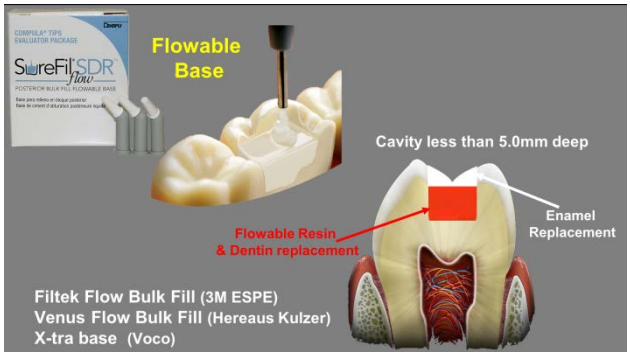
"33% to 48% of the lights in dental offices had intensities of less than 300 mW/cm²"

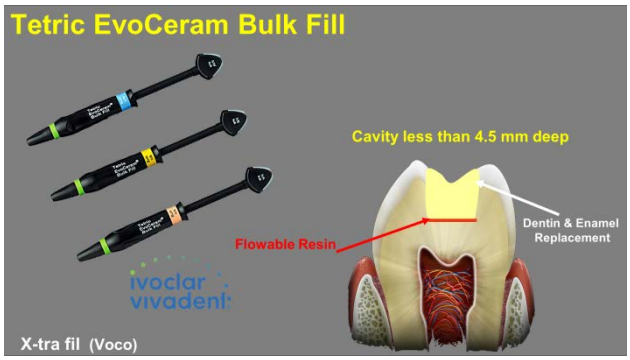
High- Intensity Lights > 1000mW/cm²
- Demi Plus, Demi Ultra (Kerr)
- Bluephase G2, 20i, Style (Ivoclar)
- Elipar S10 (3M/Espe)
- Smartlite Max (Dentsply)
- Valo (Ultradent)

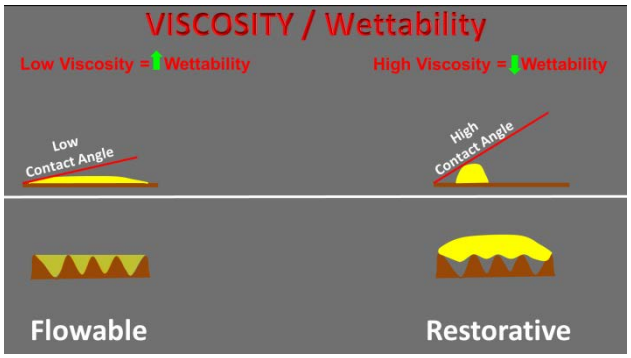


Current Technique: Time & Effort

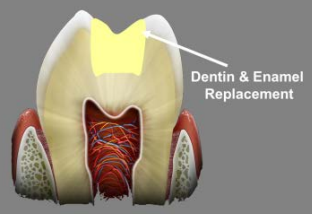
- Obtain proper Isolation
- Select and place appropriate Matrix
- Precise execution of the adhesive steps
- Placement of a Flowable or resinionomer liner
- Placement, Adaptation and light curing of at least 2 or more increments of composite
- Adjust occlusion
- Finish and Polish







WHAT DENTISTS WANT:
Rapid, Single Increment, Bulk Fill Placement

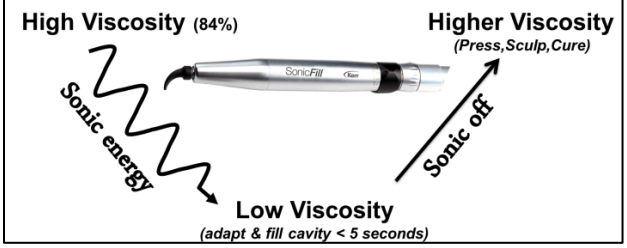


Requirements:

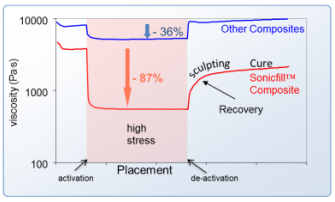
1. High Depth of Cure
2. ↓Shrinkage Stress
3. ↑Mechanical Properties
4. Adaptation
5. Esthetics

Customized Composite + Sonic Energy

SonicFill allows dentists to *rapidly* adapt and place an Esthetic Composite in 1 true "single fill" increment
(no liner needed or capping layer needed)



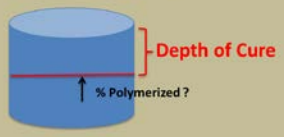
Efficient Liquefaction, Good Flowability…



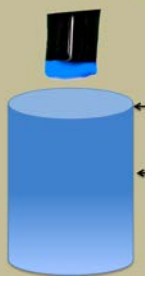
- Highly responsive to shear stress (special modifiers)
- Upon activation viscosity drops by 87%
- Upon de-activation viscosity increases for sculpting
- Other composites will not respond this way

Depth of Cure

1) International Standards Organization (ISO) #4049



Depth of Cure



2) Hardness Ratio

Knoop Hardness Value
Depth of Cure
80% (90% Carbon Conversion)

Dental Advisor
(Research Report #33, 2 / 2011)

NOVA Southeastern University
(Dr. Jeff Thompson)

SonicFill @ 5 mm
97%
Demi Plus LED

Shrinkage Stress

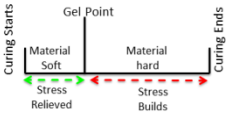
Contributing Factors:

1. Volumetric Shrinkage
2. C-Factor (Configuration Factor)
3. Modulus of Elasticity
4. Polymerization Kinetics
   (post-gel shrinkage)

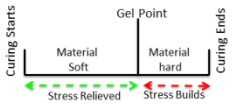
Measurable Effects:

1. Marginal Gaps
2. Cuspal Bending

Static Composites



Activated Composite (SonicFill)



Professor Dr. Claus – Peter Ernst,
Dept. Oper Dent Johannes Gutenberg University Mainz, Germany

Random, Split Mouth Clinical Trial

70 Patients – 140 Restorations

Materials Studied:
Premise Layered, SonicFill bulk filled
Optibond XTR Adhesive – ½ with Selective Etch

Results:
- At 6 months no statistical difference among any restorations

1) SonicFill Bulk = Premise Layered
2) Optibond XTR with or without Selective Etch - Same

Drs. Frankenberger, Shulz, et. al.
Medical Center for Dentistry - Marburg, Germany May 2012

Bulk-Fill vs. Layered Resin Composite Restorations in Class II Cavities: 1 Year Clinical Results

Materials Studied:
1. Herculite XRV / Optibond FL – Layered (54 Restorations)
2. SonicFill / Optibond FL – Bulk-Fill (64 Restorations)

Results:
- No clinically significant differences between the materials at **1 year**

Dr. Parag Kachalia & Dr. Marc Geissberger,
University of Pacific, School of Dentistry June 2011

Clinical Evaluation of Restorations using a New Composite Material and Oscillating Handpiece and Comparing it with Traditional Composite Material and Placement Technique

Materials Studied:
1. SonicFill / OptibondSolo Plus - 48 RESTORATIONS
2. Premise / OptibondSolo Plus (control) - 40 RESTORATIONS

Results:
- The Study has shown that the SonicFill restorations have similar outcomes as the layered Premise restorations at **18 months**

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Live Patient Hands-On Course:

Mastering Dynamic Adhesion: Practical Science, Predictable Techniques (3 days) at The Las Vegas Institute for Advanced Dental Studies 888-584-3237 or www.lviglobal.com

Live Patient Videos by Dr. Jackson:

- Esthetic Restorative Excellence with Inlays/Onlays available through Geraldine at 540-687-8075 or geraldine@ronjacksondds.com

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