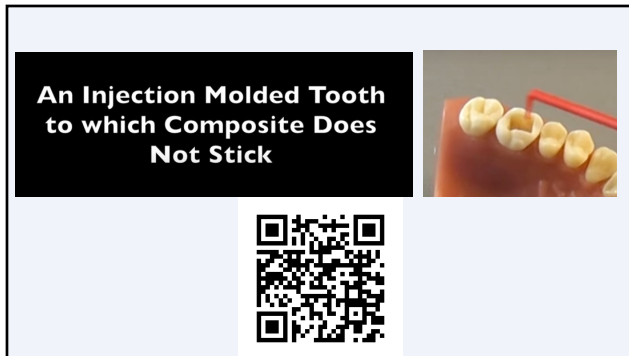
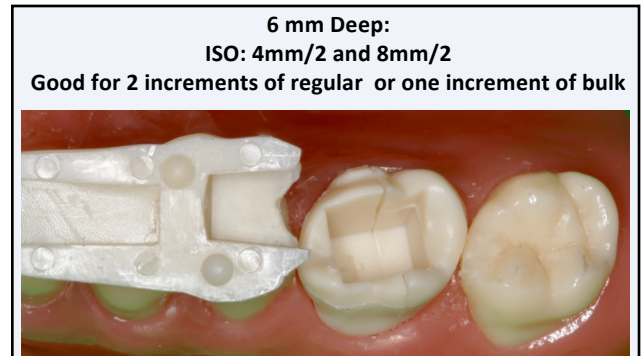
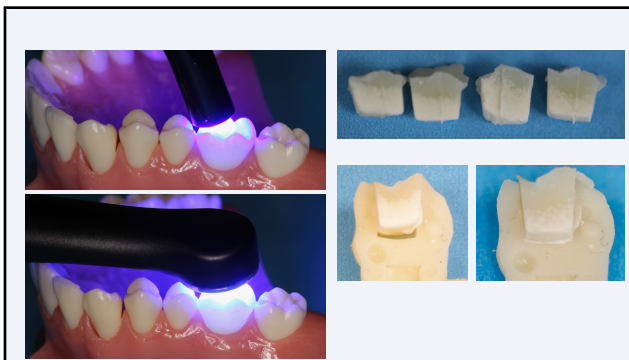




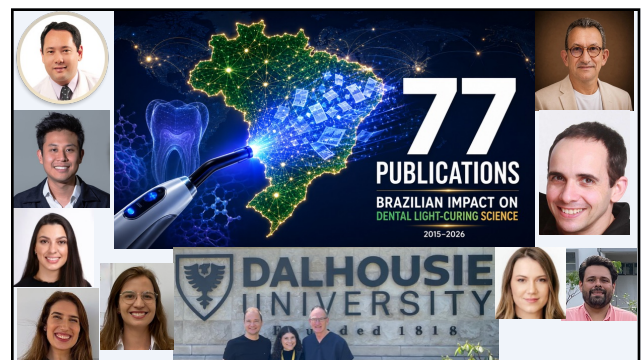
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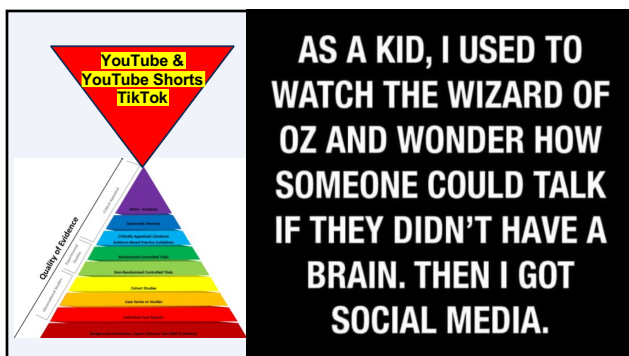
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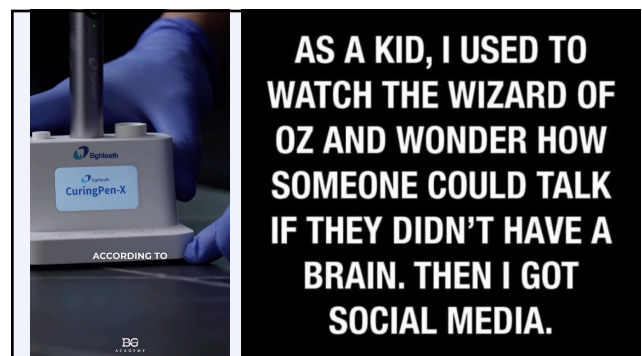
10



11



12



13

Your Curing Light Generates More Than Half Your Income: So What Do You Look For?



14

HOW MANY
DIFFERENT LIGHTS
DO YOU HAVE IN
YOUR OFFICE?

DO THEY DELIVER
THE SAME LIGHT?



16

HOW MANY
DIFFERENT LIGHTS
DO YOU HAVE IN
YOUR OFFICE?

DO THEY DELIVER
THE SAME LIGHT?

DO YOU USE THEM
ALL FOR THE SAME
AMOUNT OF TIME?



17

ALL these lights seem to
produce an acceptably hard
top surface, but you cannot
tell if the bottom is soft

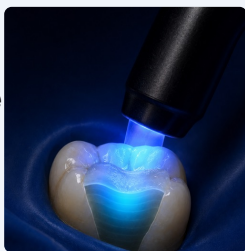


YOU CAN Only
Test
the Top

18

WHY LIGHT CURING MATTERS

Because the
restoration can only
perform as well as the
light it receives



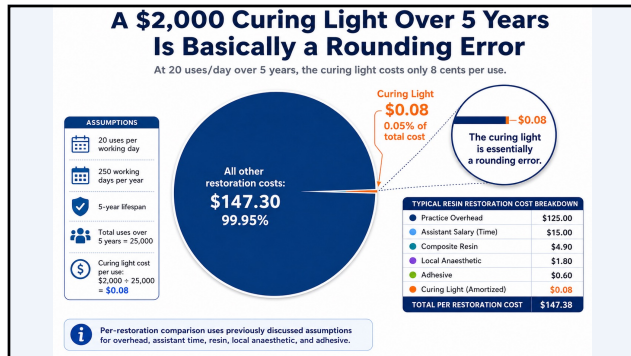
CONVERSION • STRENGTH • BIOCOMPATIBILITY • LONGEVITY

19

PROBLEM IS THE COST



20



22

Survival analysis of posterior composite restorations in National Dental PBRN general dentistry practices

Thomas Threlkeld¹, Devin Astar Shihiga², George Eickert³, Michelle Lohfeld⁴, William D. Stapp⁵, Valerie E. Cooper⁶, D. Brad Bland⁷, Mark Johnson⁸, Craig H. Kilian⁹

- 700,885 posterior composites in 202,988 patients
- **75 % of the restorations were followed for 5 years or less.**
- Overall AFR of 4.5 % to 5.8 % for yrs 1–5, and 5.3 % to 5.7 % for yrs 6–10
- **Why do 20% of failures occur within 1 year and another 54% between 1 and 5 years after placement?**

23

Manufacturers are SELLING and YOU are USING UNFINISHED PRODUCTS

Polymerization: Conversion monomers to polymers.

- Light-activated process with specific wavelength requirements
- Degree of Conversion (DC = critical quality indicator)

25

You Can Only Test the Top

26

Poor Bonding/Poor Curing?

27

UNCURED, EVEN DANGEROUS AT THE BOTTOM

Excellent Product

Useless Product

28

Do You Want To Double Your Bond Strengths?

LIGHT CURE PROPERLY

29

Home > Features > The split-tooth model: Solving the 'soggy bottom' problem

The split-tooth model: Solving the 'soggy bottom' problem

07/06/2026 by Richard B. Price, BDS, DDS, MS, PhD, FRCD(C), FDS RCS (Edin)

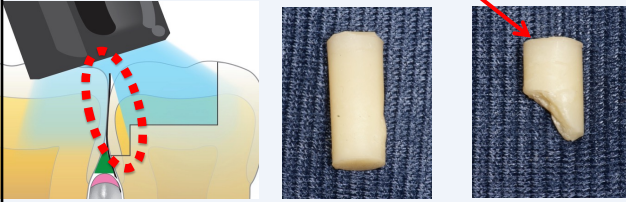



30

Change the Angulation Change the Cure

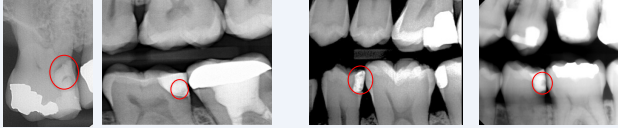
TO

ANGLE



31

VOIDS



GREAT RESEARCH PROJECT

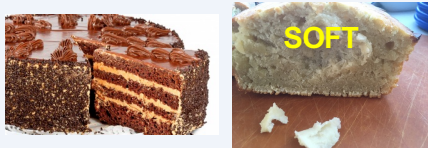
32

LIGHT CURING IS LIKE BAKING



34

LIGHT CURING IS LIKE BAKING




Paradigm™
MZ100

35

6 QUESTIONS DENTISTS SHOULD ASK THE MANUFACTURER

Why does polymerization light you buy enough?
Because every restoration you place requires **each cure** to be effective.

- 1 IS THE LIGHT APPROVED FOR USE IN MY COUNTRY?**
Is the light-curing unit a registered medical device for clinical use in my practice?
- 2 WHAT LIGHT OUTPUT DOES THE UNIT DELIVER?**
What irradiance or power should it deliver — and under what testing conditions?
- 3 WHAT IS THE EMISSION SPECTRUM OF THE LIGHT?**
Is the light only blue or does it have multiple wavelengths — and how does this match the photoinitiators used?
- 4 WHAT IS THE LIGHT PROFILE AT THE TIP OF THE LIGHT?**
Is the light uniform across the tip — and how does irradiance change at the edges and center?
- 5 WHAT IS THE EFFECT ON DISTANCE UNTIL 10 mm FROM THE IRRADIANCE ENTRY?**
How does irradiance change when the tip is 0, 2, 4, 6, 8, or 10 mm away from the surface?
- 6 WHAT ARE THE RECOMMENDED EXPOSURE TIMES FOR DIFFERENT MATERIALS?**
For different materials, shades and thicknesses, what exposure times (and energies) do you recommend?

MY PATIENTS. MY PRACTICE. MY RESPONSIBILITY.
Check the evidence, not just the marketing.

38

6 PERGUNTAS QUE OS DENTISTAS DEVEM FAZER AO FABRICANTE

Porque o fotopolimerizador que você compra afeta **cada restauração** que você faz.

- 1 PERGUNTA: ELA ESTÁ APROVADA PARA USO NO MEU PAÍS?**
Este fotopolimerizador é um dispositivo médico registrado para uso clínico no país onde eu atuo?

MEUS PACIENTES. MEU CONSULTÓRIO. MINHA RESPONSABILIDADE.
Peça evidências, não apenas marketing.

39

Dental Curing Lights

In the USA, **Curing Lights are Class II Medical Devices.**




40

Alibaba.com **390 Sold** **\$10** Deliver to: English-USD Tax exemption

Medical devices & Supplies > Professional Medical Devices > Dental Equipments > Oral Therapy Equipments & Accessories

Wholesale Customization

FREE shipping capped at \$20

1S Dental Curing Light Lamp Metal Head 1S Cure 4 Modes Wireless Dental LED Light Curing

★★★★★ 5.0 (1 review) 390 sold 47 hot selling in Oral The...

Lowest among similar

\$10	\$9.80	\$9.50	\$8.90
1-9 pieces	10-49 pieces	50-99 pieces	≥100 pieces

*Taxes and import charges will be calculated at checkout

41

NO BRASIL, OS FOTOPOLIMERIZADORES ODONTOLÓGICOS SÃO DISPOSITIVOS MÉDICOS

- DISPOSITIVO MÉDICO ODONTOLÓGICO ATIVO
- REGULADO PELA ANVISA
- GERALMENTE CLASSE DE RISCO II – RISCO MÉDIO
- REGRAS 9 - NOTIFICAÇÃO À ANVISA OBRIGATORIA

ANTES DA IMPORTAÇÃO OU COMERCIALIZAÇÃO NO BRASIL, O FOTOPOLIMERIZADOR DEVE POSSUIR UMA NOTIFICAÇÃO VÁLIDA NA ANVISA

NÃO CONFUNDA TRÊS CLASSIFICAÇÕES DIFERENTES:
CLASSE DE RISCO II DA ANVISA ≠ CLASSE ELÉTRICA II DA IEC ≠ GRUPO DE RISCO FOTOBIOLOGICO 2

42

COMPROU UM FOTOPOLIMERIZADOR DIRETAMENTE DO EXTERIOR?

VENDEDOR ON-LINE NO EXTERIOR > ENVIO PARA O BRASIL > **VOCÊ = O IMPORTADOR**

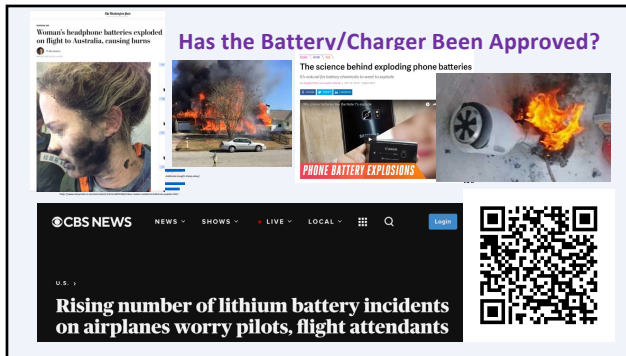
VOCÊ DEVE PREENCHER OS FORMULÁRIOS EXIGIDOS

- SISCOMEX
- PETIÇÃO À ANVISA
- REGISTRO PROFISSIONAL
- REGULARIZAÇÃO DO PRODUTO
- LICENÇA SANITÁRIA
- DECLARAÇÕES DE RESPONSABILIDADE

UM DISPOSITIVO ODONTOLÓGICO PROFISSIONAL **NÃO** FICA ISENTO SIMPLEMENTE POR TER SIDO COMPRADO ON-LINE.

ANTES DA IMPORTAÇÃO OU COMERCIALIZAÇÃO NO BRASIL, O FOTOPOLIMERIZADOR DEVE POSSUIR UMA NOTIFICAÇÃO VÁLIDA NA ANVISA

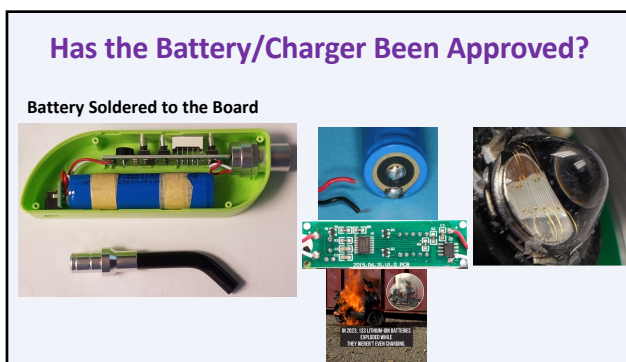
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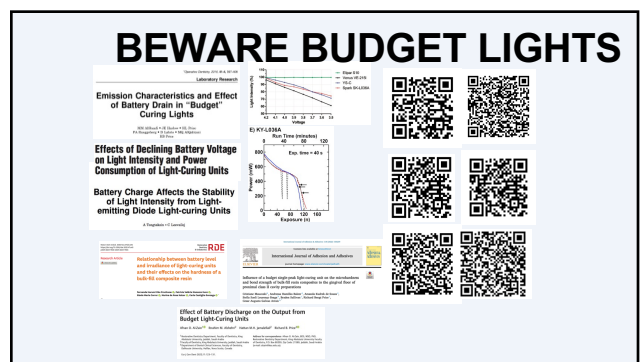
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46



47



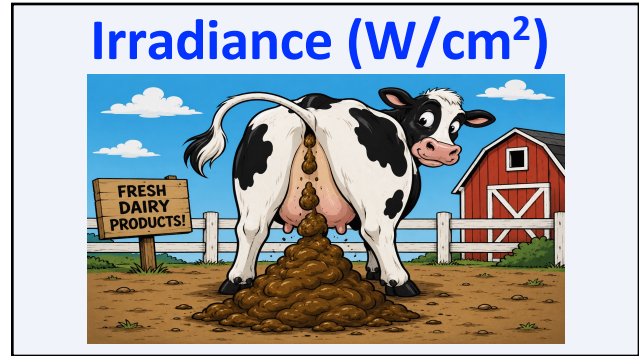
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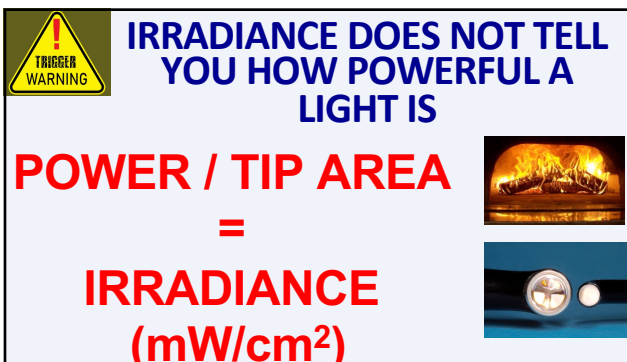
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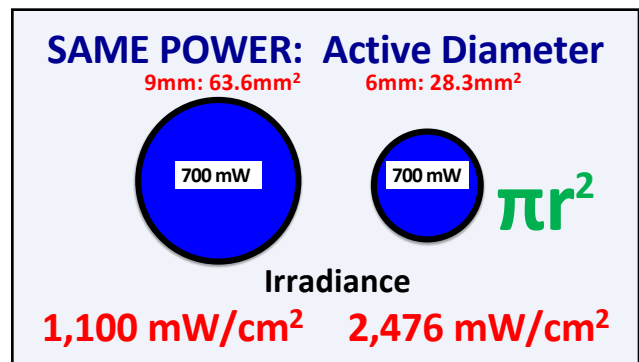
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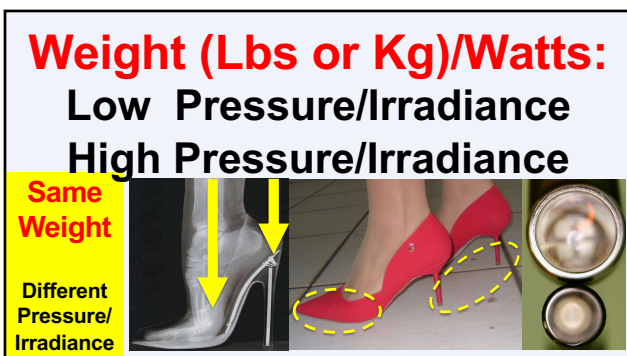
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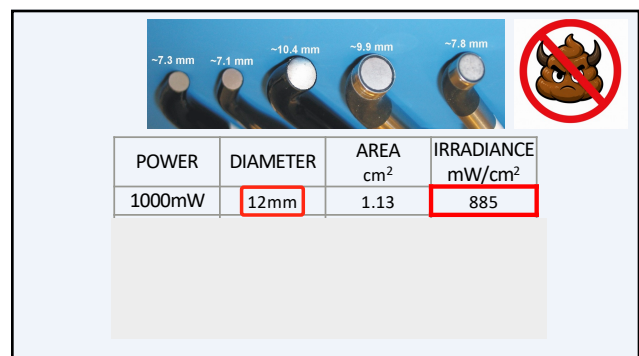
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54



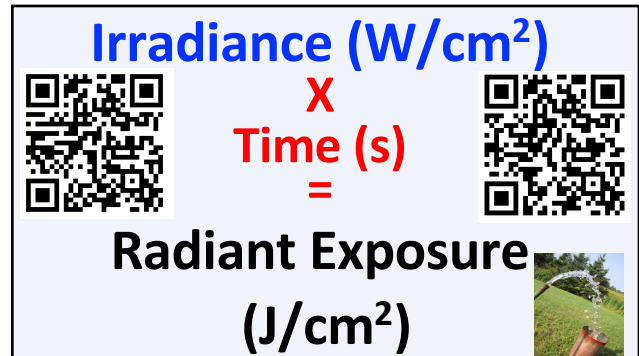
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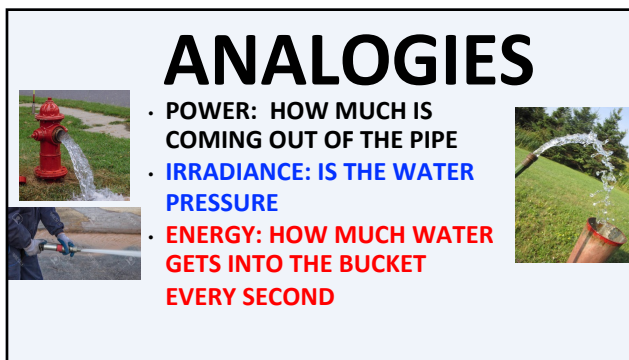
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58



59



60



61



62



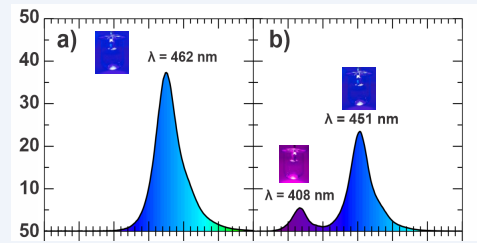
Multi Peak Lights



70

WHY?

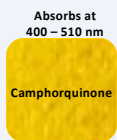
SINGLE PEAK DUAL PEAK



71

THIS IS WHY

Photoinitiators & Wavelength



Absorbs at
400 – 510 nm

Camphorquinone



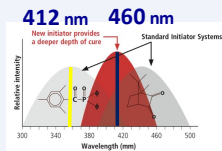
Absorbs at
380 – 430 nm

Lucirin TPO



Absorbs at
370 – 460 nm

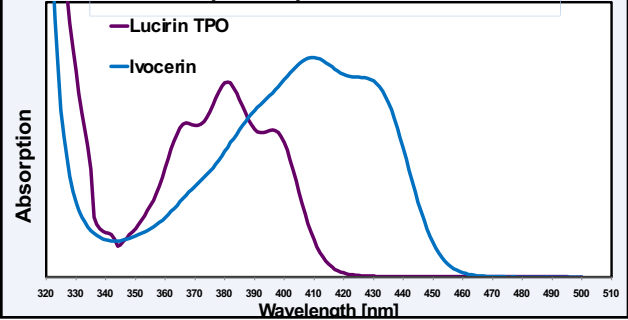
Ivocerin™



Tetric Bulk Fill
Tetric plus Fill

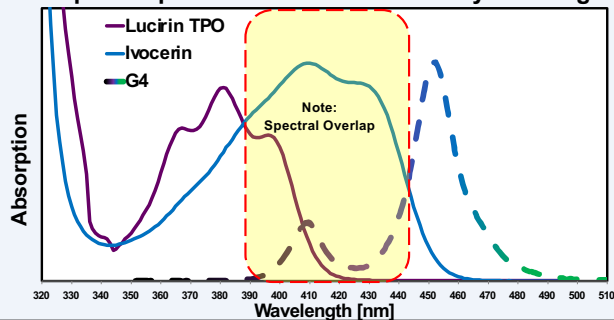
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Absorption Spectra of Initiators



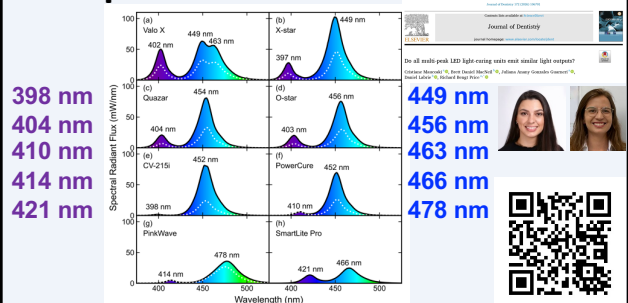
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Absorption Spectra of Initiators and Polywave Light

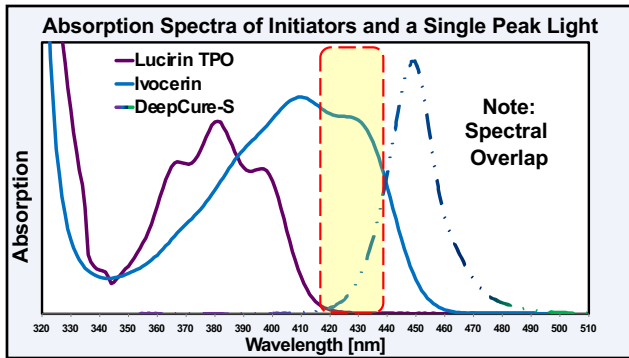


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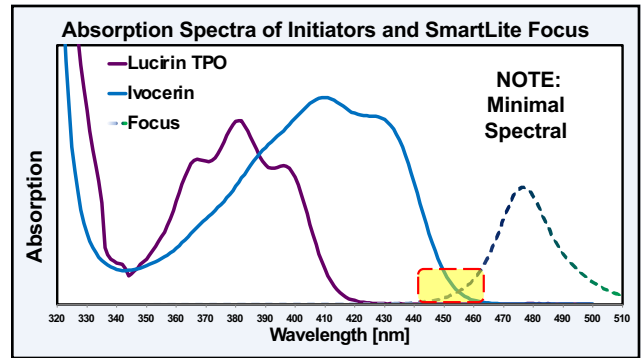
Multiple-Peak: Not All the Same



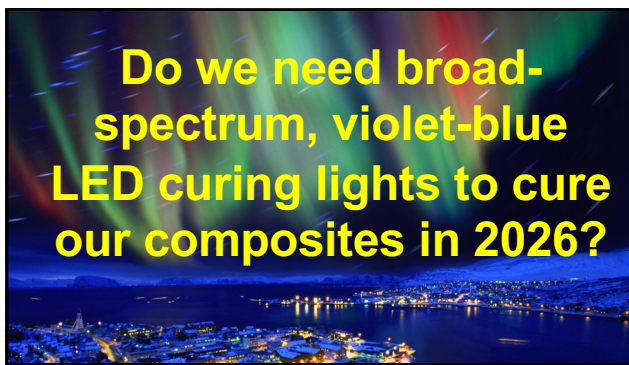
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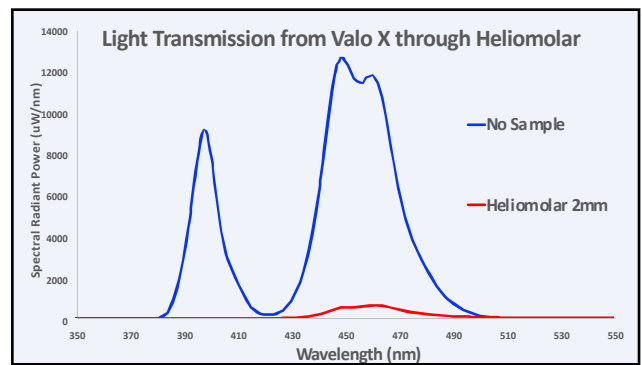
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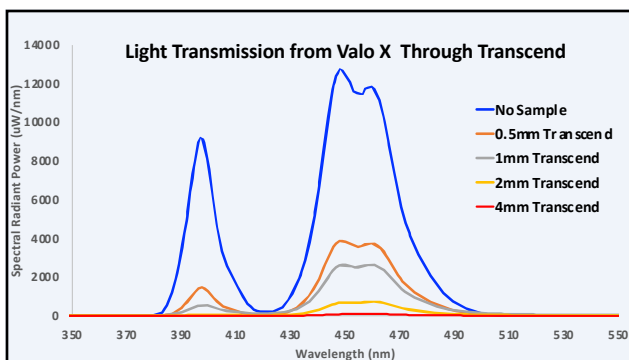
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78



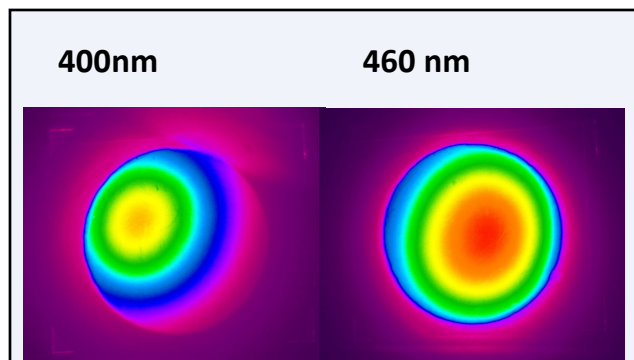
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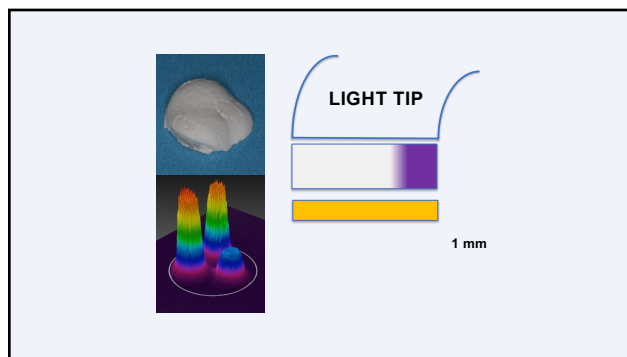
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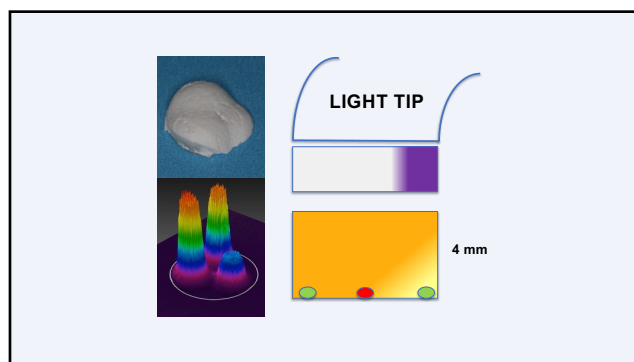
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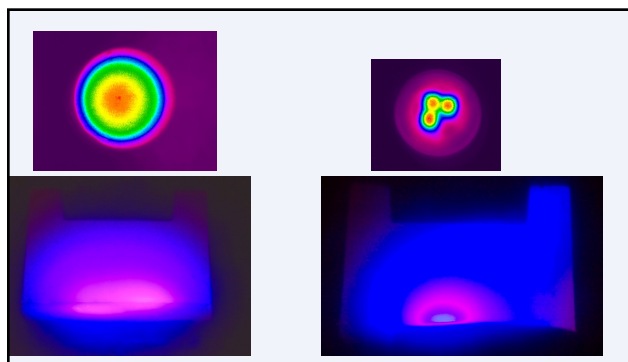
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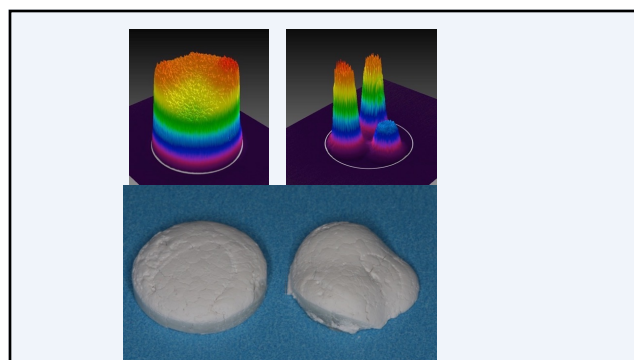
84



85



86



87

6 QUESTIONS DENTISTS SHOULD ASK THE MANUFACTURER

Why does polymerization light you buy enough?
Because every restoration you place requires **each cure** to be effective.

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MY PATIENTS. MY PRACTICE. MY RESPONSIBILITY.
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88

90

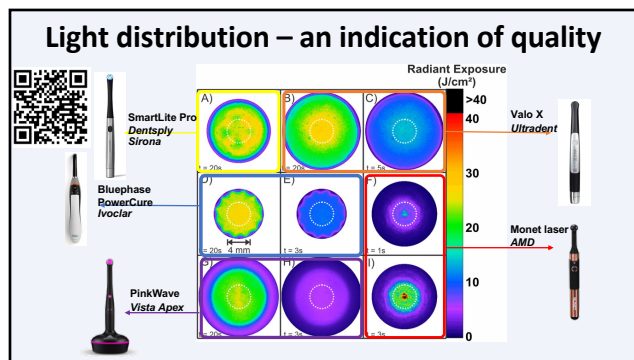
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92

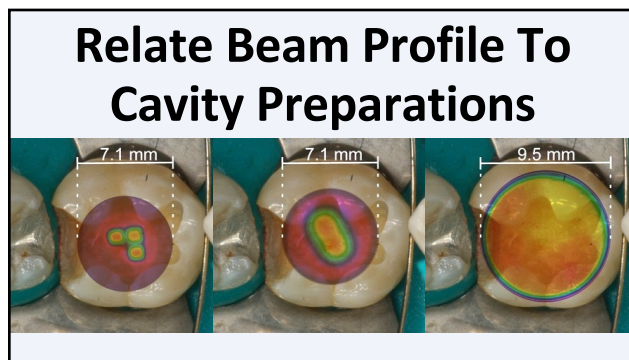
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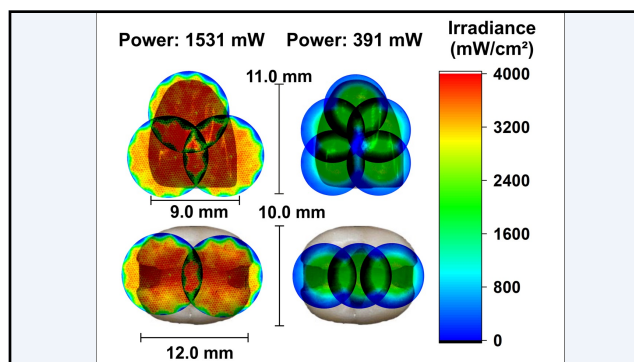
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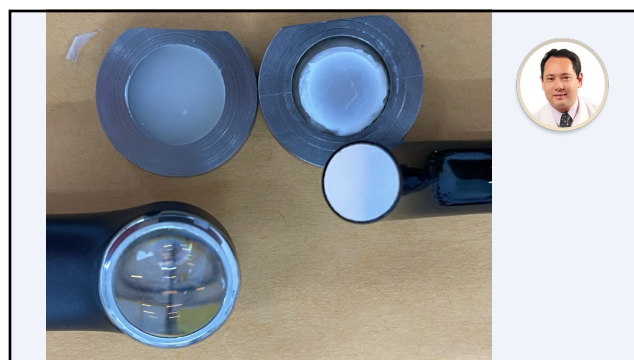
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103



104



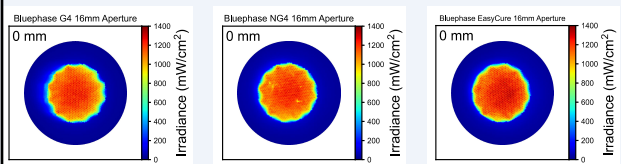
105

Bluephase G4, NG4 and Easy Cure

- Broad wavelength spectrum (385-515 nm)
- Slim and lightweight ergonomic design
- Excellent beam profile
- Stable light output

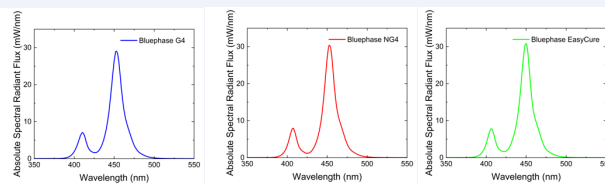
108

Beam Profile



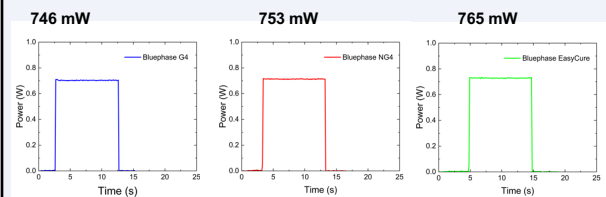
109

Emission Spectrum: Identical



110

Total Power Emitted: Identical



111

6 QUESTIONS DENTISTS SHOULD ASK THE MANUFACTURER

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How does irradiance change when the tip is 0, 2, 4, 6, 8, or 10 mm away from the surface?
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For different materials, shades and thicknesses, what exposure times (and energies) do you recommend?

MY PATIENTS. MY PRACTICE. MY RESPONSIBILITY.
Check the evidence, not just the marketing.

112

6 PERGUNTAS QUE OS DENTISTAS DEVEM FAZER AO FABRICANTE

Porque o fotopolimerizador que você compra afeta **cada restauração** que você faz.

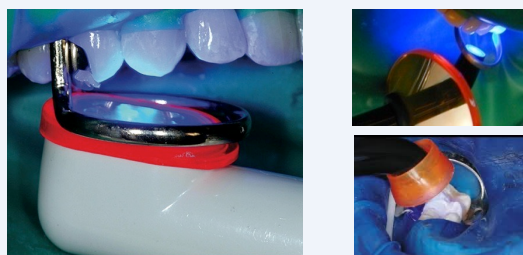
PERGUNTA 5 QUAL É O EFEITO DA DISTÂNCIA, ATÉ 10 mm, SOBRE A IRRADIÂNCIA FORNECIDA?

Quanto a irradiância cai a 0, 2, 4, 6, 8 e 10 mm da ponta do fotopolimerizador?

MEUS PACIENTES. MEU CONSULTÓRIO. MINHA RESPONSABILIDADE.
Peça evidências, não apenas marketing.

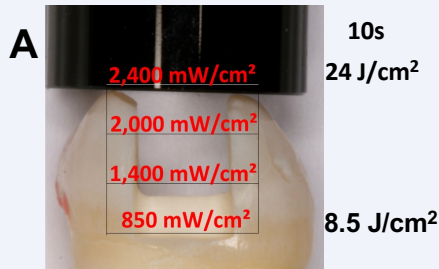
114

Effect of Distance



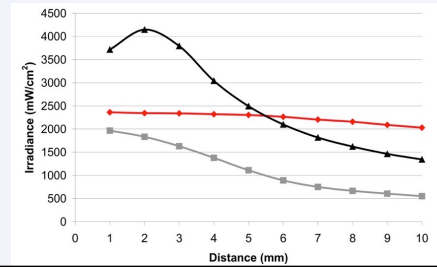
116

Effect of Distance on Irradiance



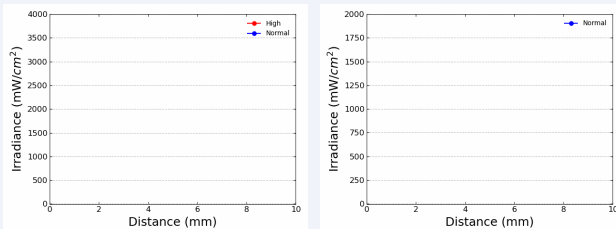
117

Distance Affects Lights Differently



118

EFFECT OF DISTANCE



119

WHAT SHOULD YOU LOOK FOR WHEN READING AN ARTICLE?

You need to know what light was **delivered** to the specimen.

Reporting the **LIGHT DELIVERED** to the specimen matters more than describing the light source alone.

What reaches the specimen determines the outcome.

- LOOK FOR THESE 5 KEY DETAILS:**
1. Irradiance at the specimen
 2. Exposure time
 3. Distance from the light tip
 4. Emission spectrum / wavelength
 5. Total energy delivered (radiant exposure)



Do not just ask:
What light was used?

Ask:
What light reached the specimen?

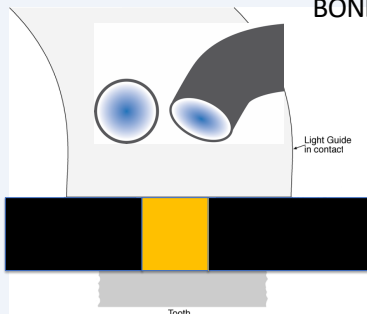


BETTER REPORTING. BETTER SCIENCE. BETTER DENTISTRY.

Look for the light delivered to the specimen.

120

BONDING STUDY

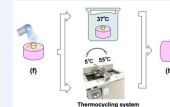


121

Assessment of bond strength and bioactivity on a prototype resin-based luting agent containing a novel **bioactive** monomer

2025

Taro Iwasaki¹ · Kei Kubochi¹ · Hiroki Takata¹ · Futoshi Komine¹



were then irradiated with PenCure 2000 for 20 s at four different positions (Fig. 2f). All specimens were placed in an incubator set at 37 °C. After 40 min, the bonded specimens were removed from the weight-loading jig.

122

CLINICAL RESEARCH

Comprehensive Evaluation of Long-Term Dentin Bond Strength, Water Sorption, Solubility, and Degree of Conversion of Self-Adhesive Resin Composites

Ye Yao^a / Di Wu^b / Carolina Cecilia Cifuentes-Jimenez^c / Hidehiko Sano^d / Pedro Alvarez-Lloret^e / Monica Yamauti^f / Atsushi Tomokiyot



2024

recommended by the manufacturers (Table 1). Each increment of each resin composite was light-cured using a blue LED light-curing unit (Pen Cure 2000 VL-10, J. Morita MFG, Tokyo, Japan, light irradiance = 2000 mW/cm²) according to the manufacturers' recommendations to form the resin blocks (4 mm height).

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Research Reports: Biomaterials & Bioengineering

Dentin beyond Its Ontology: A Platform to Produce Dental Adhesives

A. Ali^{a,1*}, B. Fata^{a,2}, Z. Shamin^a, S. Suchy^a, A. Venigalla^a, F. Gao^a, J.Z. Gaidarowski^a, C.S. Pfeiffer^a, and M.R. Carrilho^a



JDR 2026

ples required air-drying for 15 min at 37°C, followed by 30 s of photocrosslinking with a dental LED-curing unit (2,000 mW/cm²; **Bluephase** PowerCure; Ivoclar Vivadent) to achieve adequate tear resistance.

Measurement methods?
Was this what the specimen received?

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Research Reports: Biomaterials & Bioengineering

Dentin Remineralization Associating Peptide- and Particle-Assisted Strategies

A.L. Campos¹, H.S. Vilela¹, R.B. Trinca¹, V.G. de Araújo Neto², E.T. de Sousa², V.E. Arana-Chavez³, M. Giannini⁴, S. Habelitz⁴, and R.R. Braga¹



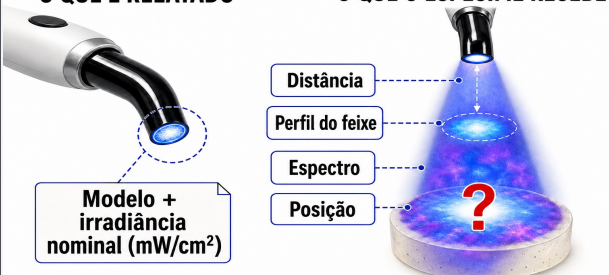
JDR 2025

of composite was applied directly to the pretreated dentin and light-cured for 20 s (1,000 mW/cm²; Valo Grand, Ultradent).

Measurement methods?
Was this what the specimen received?

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O QUE É RELATADO O QUE O ESPÉCIME RECEBE



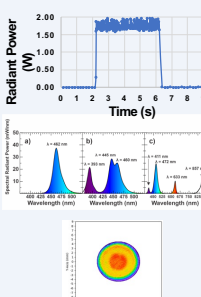
DESCONHECIDO E NÃO REPRODUTÍVEL

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IF YOU WANT TO CONDUCT REPRODUCIBLE RESEARCH

MUST REPORT

- WHAT LIGHT THE SPECIMEN RECEIVED**
- SPECTRAL RADIANT POWER**
- ENERGY**



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6 QUESTIONS DENTISTS SHOULD ASK THE MANUFACTURER

Why does polymerization light you buy enough? Because every restoration you place requires **each cure** to be effective.

- 1. IS THE LIGHT APPROVED FOR USE IN MY COUNTRY?**
Is the light-curing unit a registered medical device for clinical use in my practice?
- 2. WHAT LIGHT OUTPUT DOES THE UNIT DELIVER?**
What irradiance or power should it deliver — and under what testing conditions?
- 3. WHAT IS THE EMISSION SPECTRUM OF THE LIGHT?**
Is the light only blue or does it have multiple wavelengths — and how does irradiance change at the edges and center?
- 4. WHAT IS THE LIGHT PROFILE AT THE TIP OF THE LIGHT?**
Is the light uniform across the tip — and how does irradiance change when the tip is 0, 2, 4, 6, 8, or 10 mm away from the surface?
- 5. WHAT IS THE EFFECT ON DISTANCE UNTIL 10 mm FROM THE IRRADIANCE ENTRRIGUE?**
How does irradiance change when the tip is 0, 2, 4, 6, 8, or 10 mm away from the surface?
- 6. WHAT ARE THE RECOMMENDED EXPOSURE TIMES FOR DIFFERENT MATERIALS?**
For different materials, shades and thicknesses, what exposure times (and energies) do you recommend?

MY PATIENTS. MY PRACTICE. MY RESPONSIBILITY.
Check the evidence, not just the marketing.

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6 PERGUNTAS QUE OS DENTISTAS DEVEM FAZER AO FABRICANTE

Porque o fotopolimerizador que você compra afeta cada restauração que você faz.

PERGUNTA 6 **QUAIS TEMPOS DE EXPOSIÇÃO VOCÊS RECOMENDAM?**

Para diferentes materiais, tonalidades, profundidades de incremento e distâncias, por quanto tempo a luz deve ser usada?

MEUS PACIENTES. MEU CONSULTÓRIO. MINHA RESPONSABILIDADE.
Peça evidências, não apenas marketing.




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FOLLOWING THE INSTRUCTIONS GIVES YOU EVEN CURE

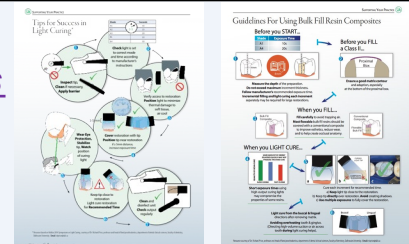
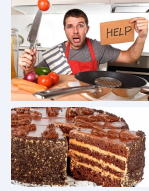
Try for Success in Light Curing

Guidelines for Using Bulk Fill Resin Composites

Before you FILL a Cavity...

When you FILL...

When you LIGHT CURE...



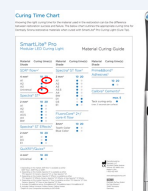
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Recipe Says:
Bake for 30 minutes at 350° C

Martha Stewart's CAKES

Curing Time Chart

Dentist asks:
Can I bake it in 15 minutes at 700°C / Cure my Resin in 1s?



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What could Possibly go wrong?

BAKING - IS NOT SUPER POWER

TRUST THE RECIPE - PROBABLY

CAKE PLAN - MIX, BAKE, FROST?

HOPE & SPRINKLES

BAKERS GONNA BAKE



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FOLLOW THE INSTRUCTIONS

Tetric® PowerFill | Tetric® PowerFlow

Curing Time Chart

Material Curing Guide



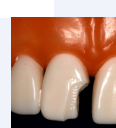


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FILTEK SUPREME

Shades	Increment Depth	All Halogen and LED Lights (with output of 400-1000 mW/cm²)	3M™ Elipar™ LED Curing Lights (with output 1000-2000 mW/cm²)
Body, Enamel, Translucent	2 mm	20 sec.	10 sec.
Dentin, A6B and B5B	1.5 mm	40 sec.	20 sec.

Only 1.5 mm Increments and DOUBLE the Exposure Time

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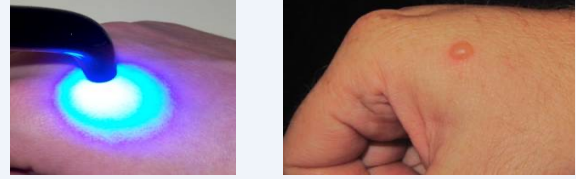
HOW HOT IS THE OVEN/LIGHT?



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BEWARE of BURNS

If 10s is max time, then use light for 10s,
then blow air, allow 3s to cool down,
before turning on again



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BURN SOFT TISSUES Gingivae: Rare or Medium?

Curing light burns

Thomas J. Specialty DDS, MS • Alan Winkler DDS, MS, PhD • John Douglas DDS • David Dwyer DDS
Bryn Mawr, PA, USA

This study sought to assess the potential heat generated by a light curing LED light unit, which has generally been considered to be relatively safe. As the heat generated by curing lights will produce a similar heat of heat and

heat the potential to cause damage to soft tissue



- Three cases where LED curing light burned lip
- The light should be positioned over the restoration
- Place gauze under the rubber dam to reduce damage to the soft tissue

Maucoski C, et al. (2017) Analysis of temperature increase in swine gingiva after exposure to a Polywave LED light curing unit. *Dent Mater* 33: 1266-1273.

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YouTube Videos:

Tips to help you choose a curing light

Filling a cavity with a poor technique

How to avoid knit lines in your composites



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GOOD LIGHTS ON THE MARKET: 2026



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Thank You CANADIAN BBQ

Dr. Labrie
Dr. Ferracane
Dr. Strassler
Dr. Giannini
Dr. Rueggeberg
Dr. Stansbury



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QUESTIONS



YouTube: PriceCuringLab
email: rbprice@dal.ca

