



KALORE™

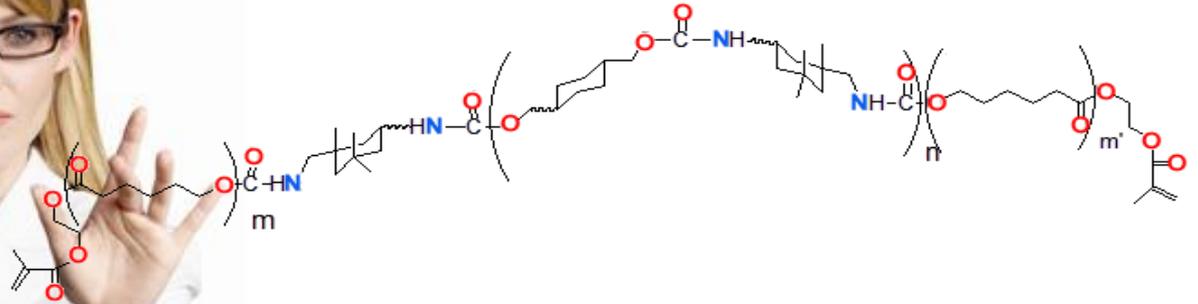
THE SCIENCE BEHIND THE SMILE



Technical Overview



Witness the Discovery  
of a Revolutionary Composite

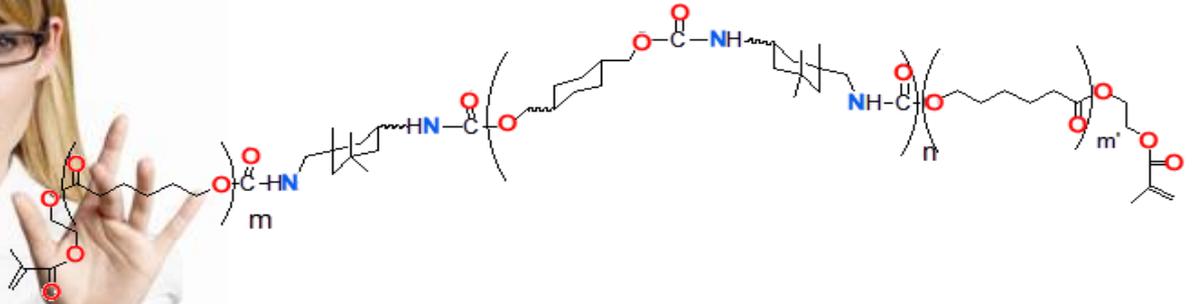


With exclusive, new monomer technology from DuPont to create a truly revolutionary TOTAL PACKAGE in aesthetic dentistry.

## Three components factor into KALORE's unique design:

- DuPont's new monomer technology
- GC America's patented HDR\* prepolymerized fillers
- The proprietary interphase between the fillers and the matrix

# A Breakthrough in the Matrix Phase



The DuPont Monomer

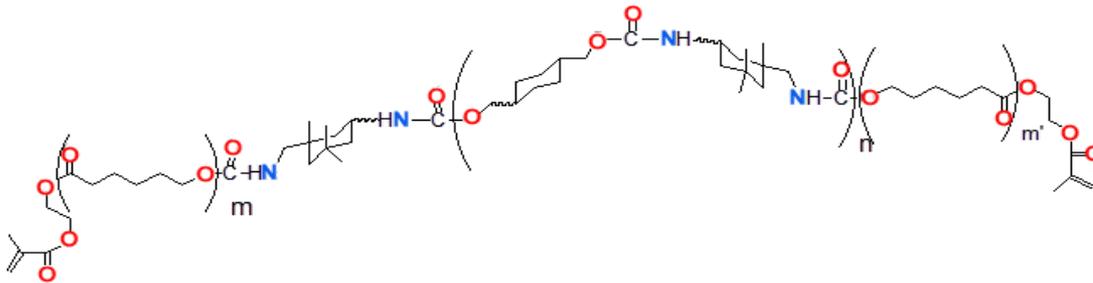
# A Breakthrough in Matrix Phase

**DX-511** Monomer (New Monomer Technology from Dupont)

UDMA (Urethane Dimethacrylate)

Dimethacrylate co-monomers

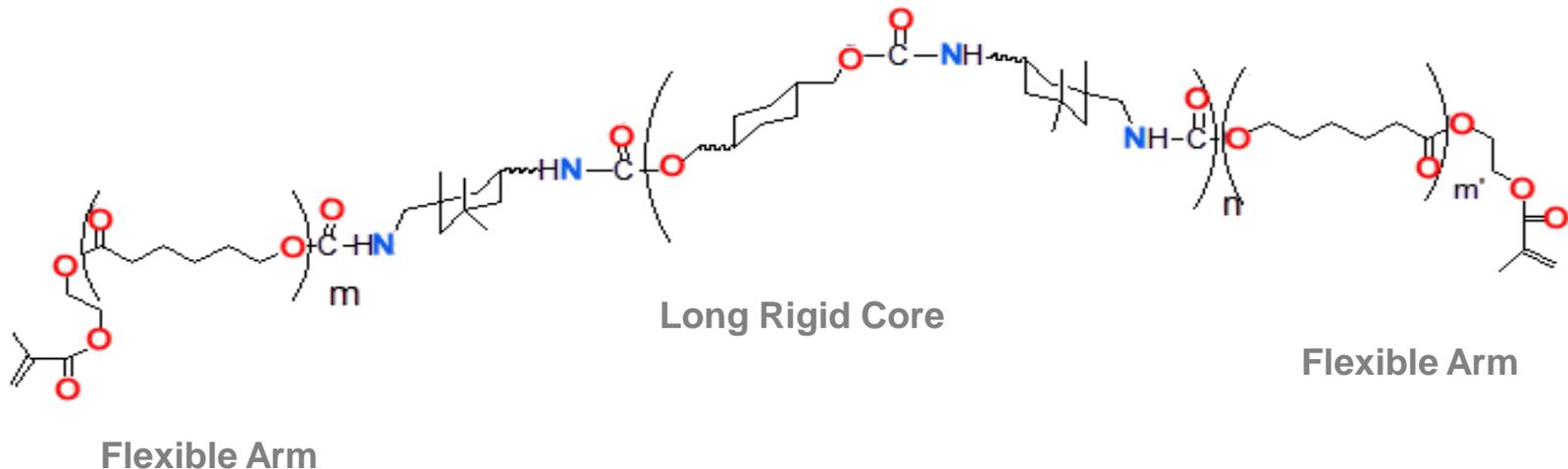
**No Bis-GMA**



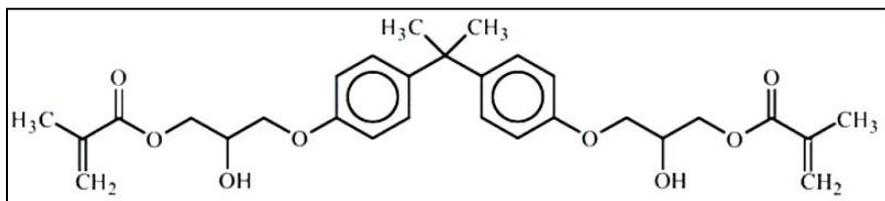
# The DuPont Monomer

## DX-511 Monomer (New Monomer Technology from DuPont)

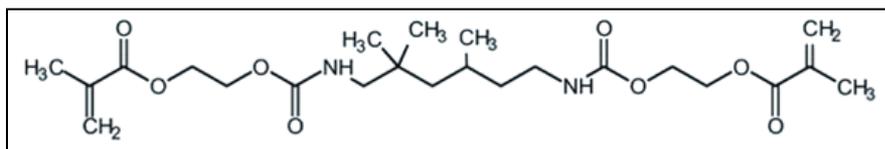
- The long rigid core helps reduce polymerization shrinkage.
- The flexible side arms help increase monomer reactivity.
- High molecular weight (895) and low number of C=C double bonds help reduce polymerization shrinkage.
- The monomer is compatible with current adhesive and composite products.



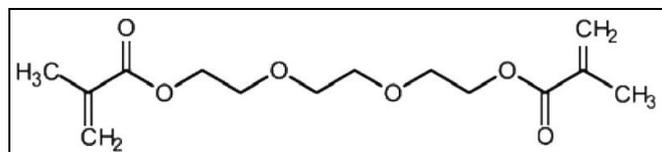
# DX-511 (DuPont monomer) compared with typical Resin Based Monomers, Relative Size and Molecular Weights



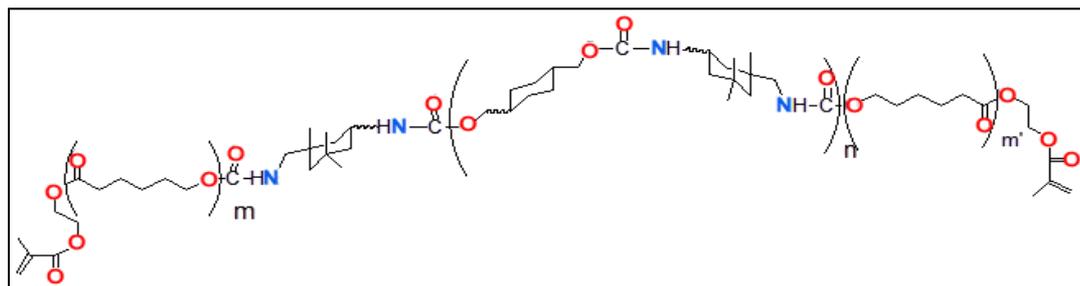
Bis-GMA,  
MW 512.6



UDMA  
MW 470.6

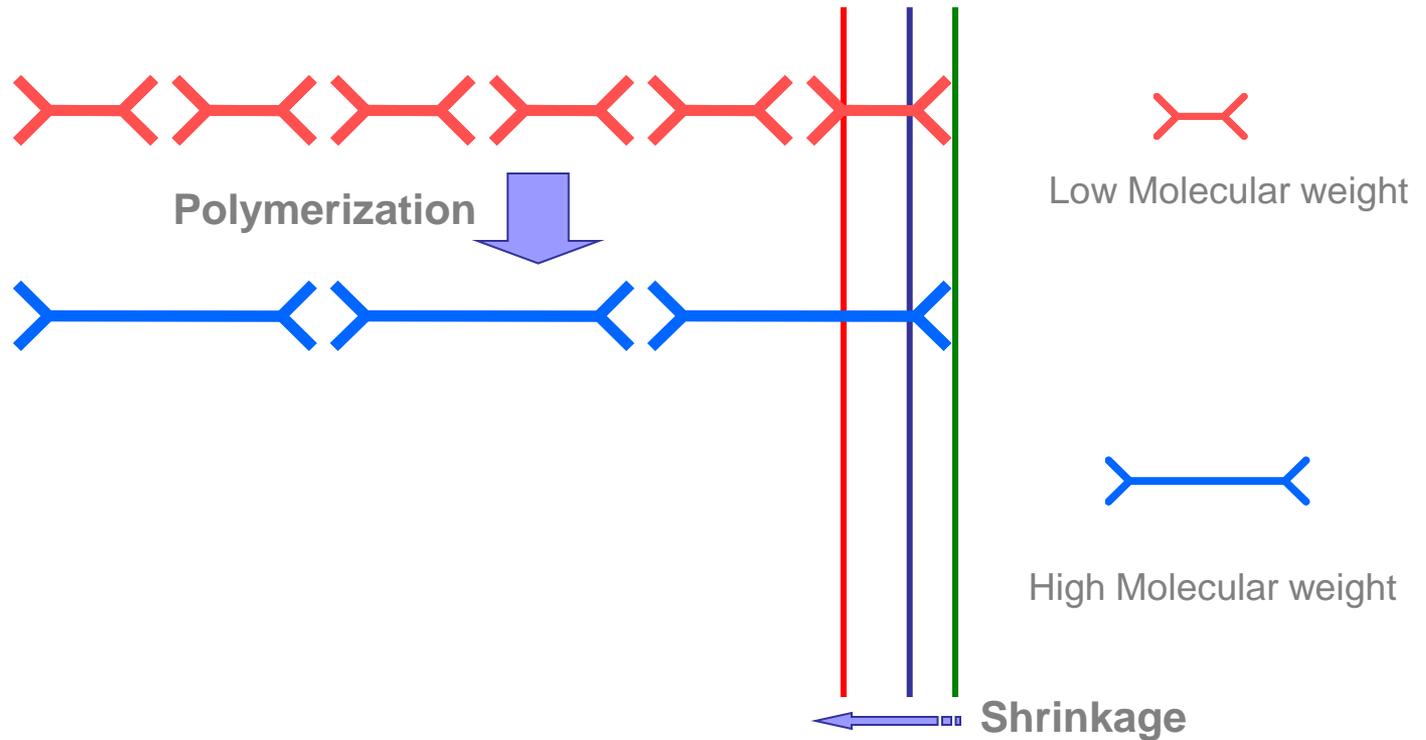


TEGDMA  
MW 286.3

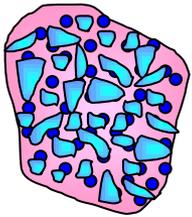


DX-511  
MW 895

# Increasing the size and molecular weight of monomers reduces overall shrinkage



## New Prepolymerized Filler of KALORE™

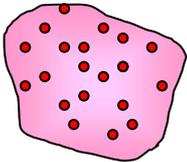


Ave. 17  $\mu\text{m}$   
400 nm Strontium Glass  
100 nm lanthanoid fluoride  
Special Surface treatment



High Radiopacity

## Conventional Prepolymerized Filler



Ave. 17  $\mu\text{m}$   
16 nm silica filler



No Radiopacity

Both Strontium Glass and Lanthanoid Fluoride have radiopacity.  
Especially, Nano Lanthanoid Fluoride has high radiopacity and does not block visible light.

# A New Improved Filler Phase

## Prepolymerized filler (with Lanthanoid Fluoride)

- 30 – 35% by weight

## Fluoroaluminosilicate glass

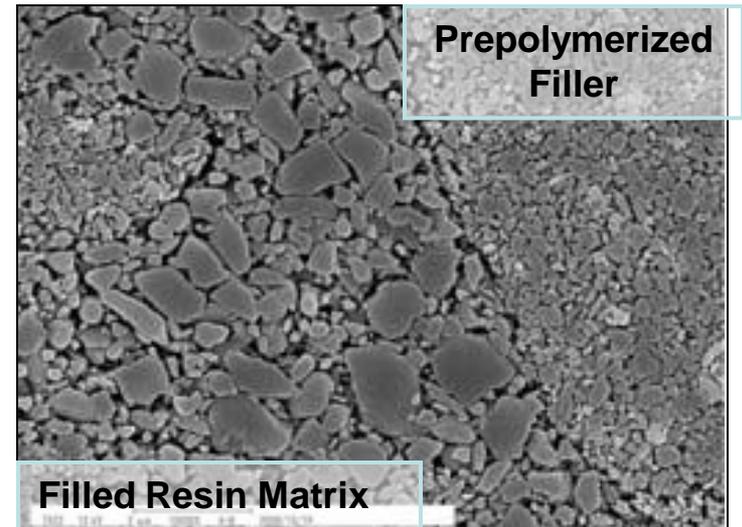
- 20 – 30% by weight

## Strontium/Barium glass

- 20 – 33% by weight

## Silicon dioxide (Nanofiller)

- 1 – 5% by weight

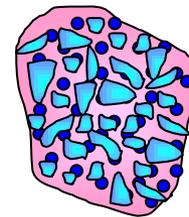
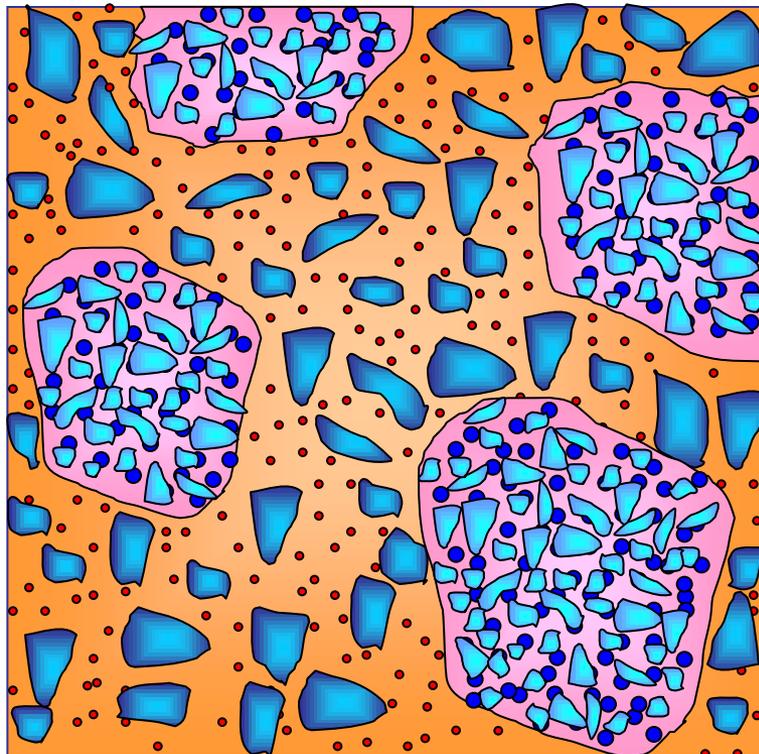


Prof. Miyazaki Nihon University SEM image x10000

**82% Filled by weight**

# A New Improved Filler Phase

## New Prepolymerized Filler



Average Size 17  $\mu\text{m}$

 400 nm Strontium Glass

 100 nm Lanthanoid fluoride

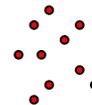
## Glass Fillers



700 nm Strontium Glass

700 nm Fluoroaluminum Silicate Glass

## Non-aggregated Nano Silica Filler



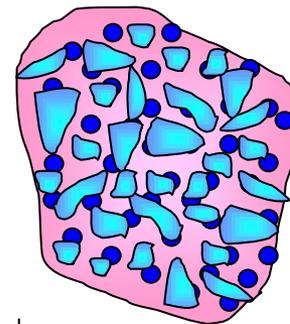
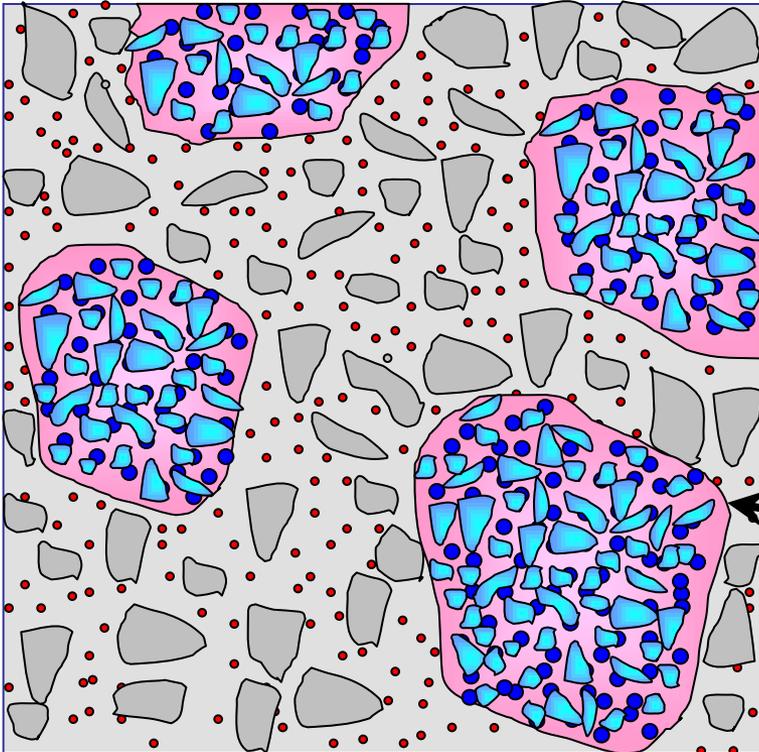
16 nm Silica filler

# A New Improved Filler Phase

## New HDR Prepolymerized Filler Particles

Average Overall Size, 17  $\mu\text{m}$

Special Surface Treatment used for better bonding to surrounding resin.



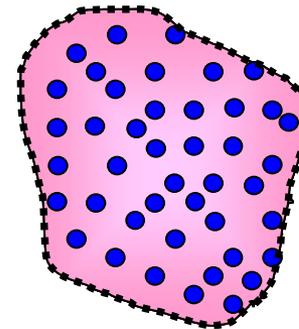
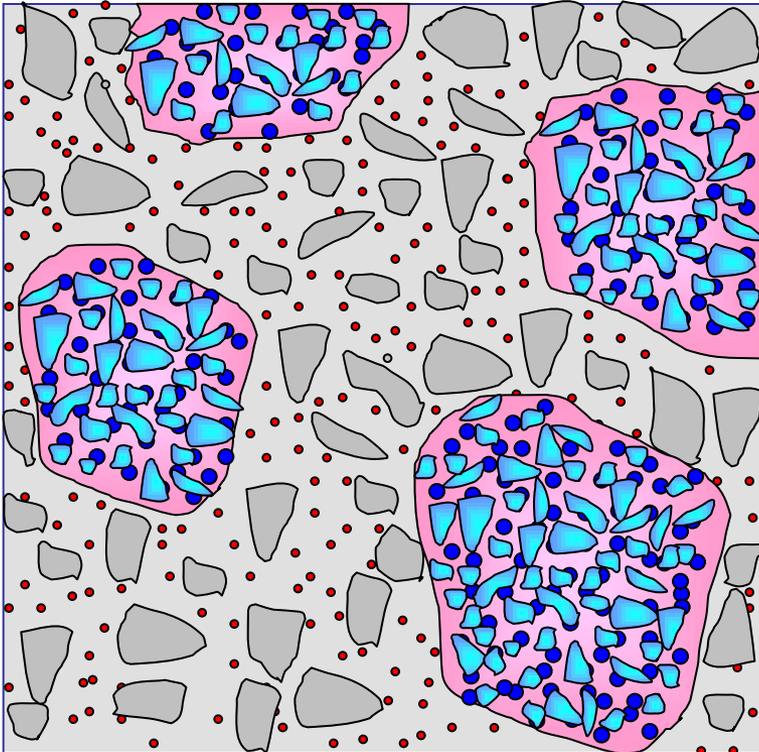
HDR = High Density Radiopaque

# A New Improved Filler Phase

## Prepolymerized Fillers Internal Nano Particles

400 nm Strontium Glass  
60% by weight

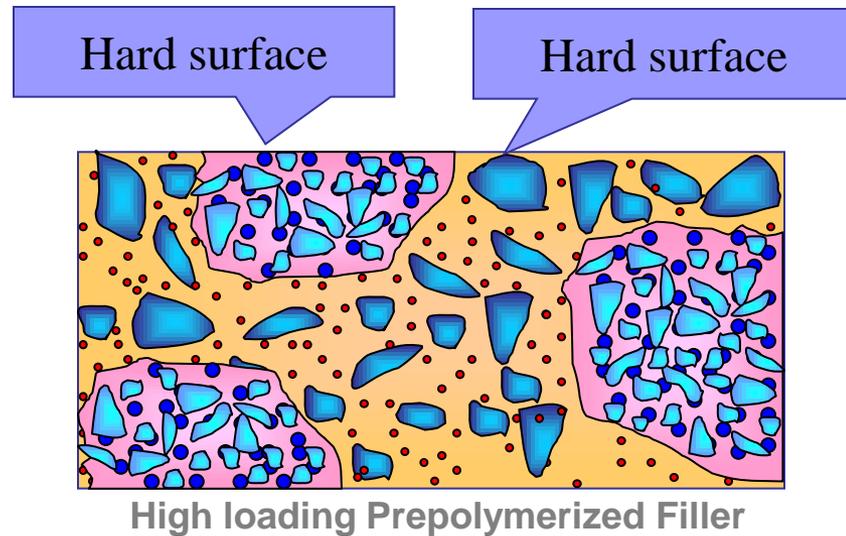
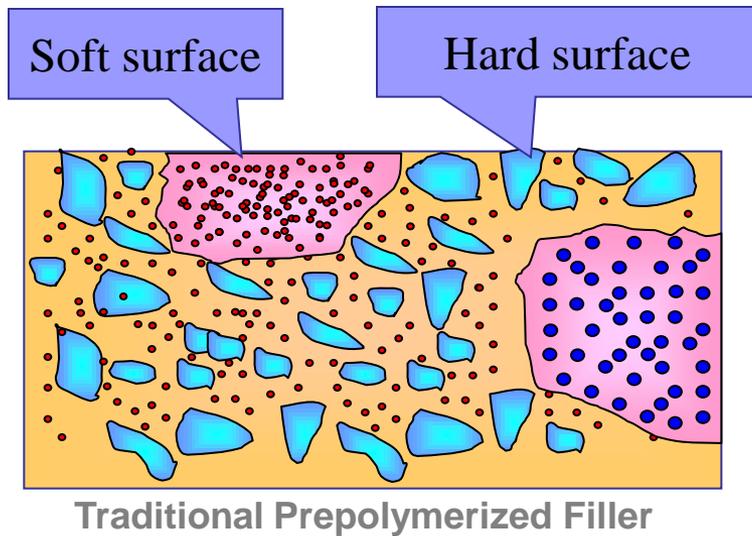
100 nm Lanthanoid Fluoride  
20% by weight



Lanthanoid fluoride glass allows for effective transmission of light to achieve translucency while blocking x-rays for enhanced radiopacity.

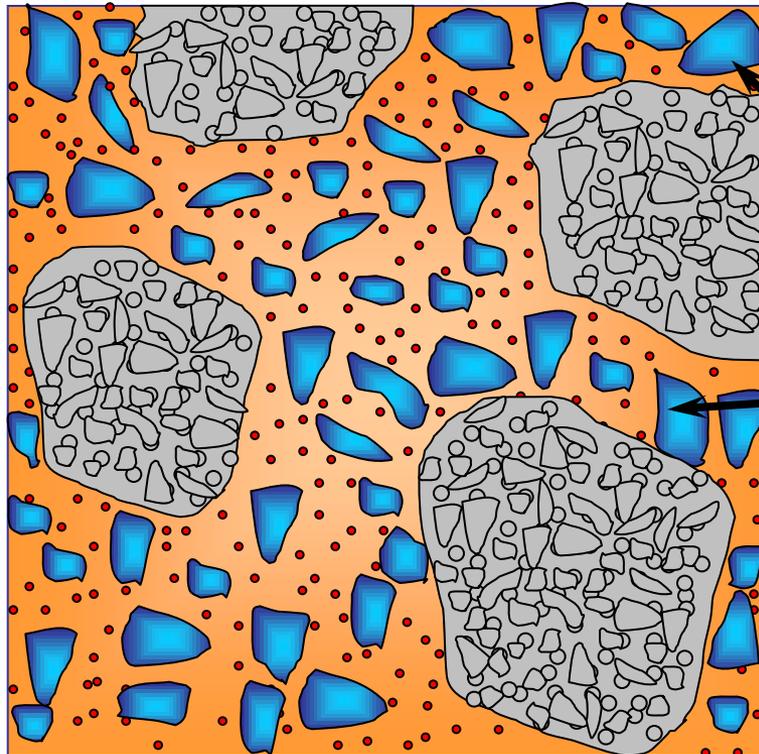
Special Surface treatment used for improved bonding to surrounding resin.

# Wear Resistance



High loading Prepolymerized fillers provide better wear resistance than traditional less loaded Prepolymerized fillers.

# A New Improved Filler Phase



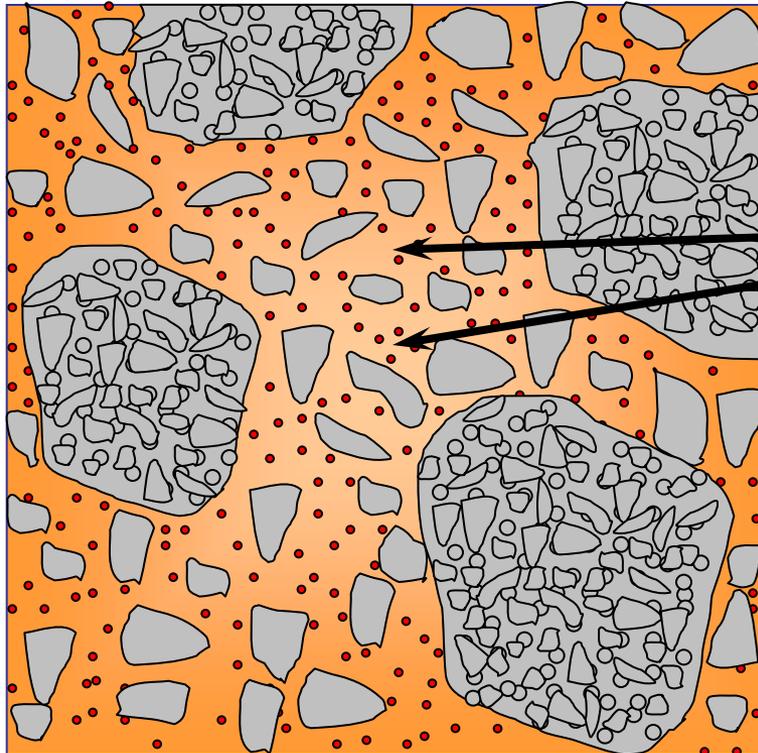
## Glass Fillers

700 nm Strontium  
Glass

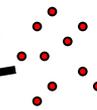
700 nm Fluoroaluminum  
Silicate Glass

The modified strontium and fluoro aluminosilicate glasses have slightly different refractive indexes from each other for an improved chameleon effect.

# A New improved Filler Phase



## Nano Silica Filler



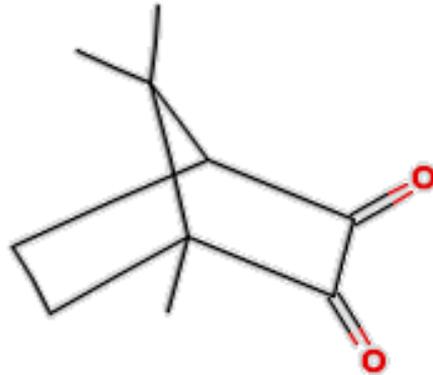
16 nm silica, mono-dispersed  
for better wear resistance

**This improves the wear resistance of  
the resin matrix.**

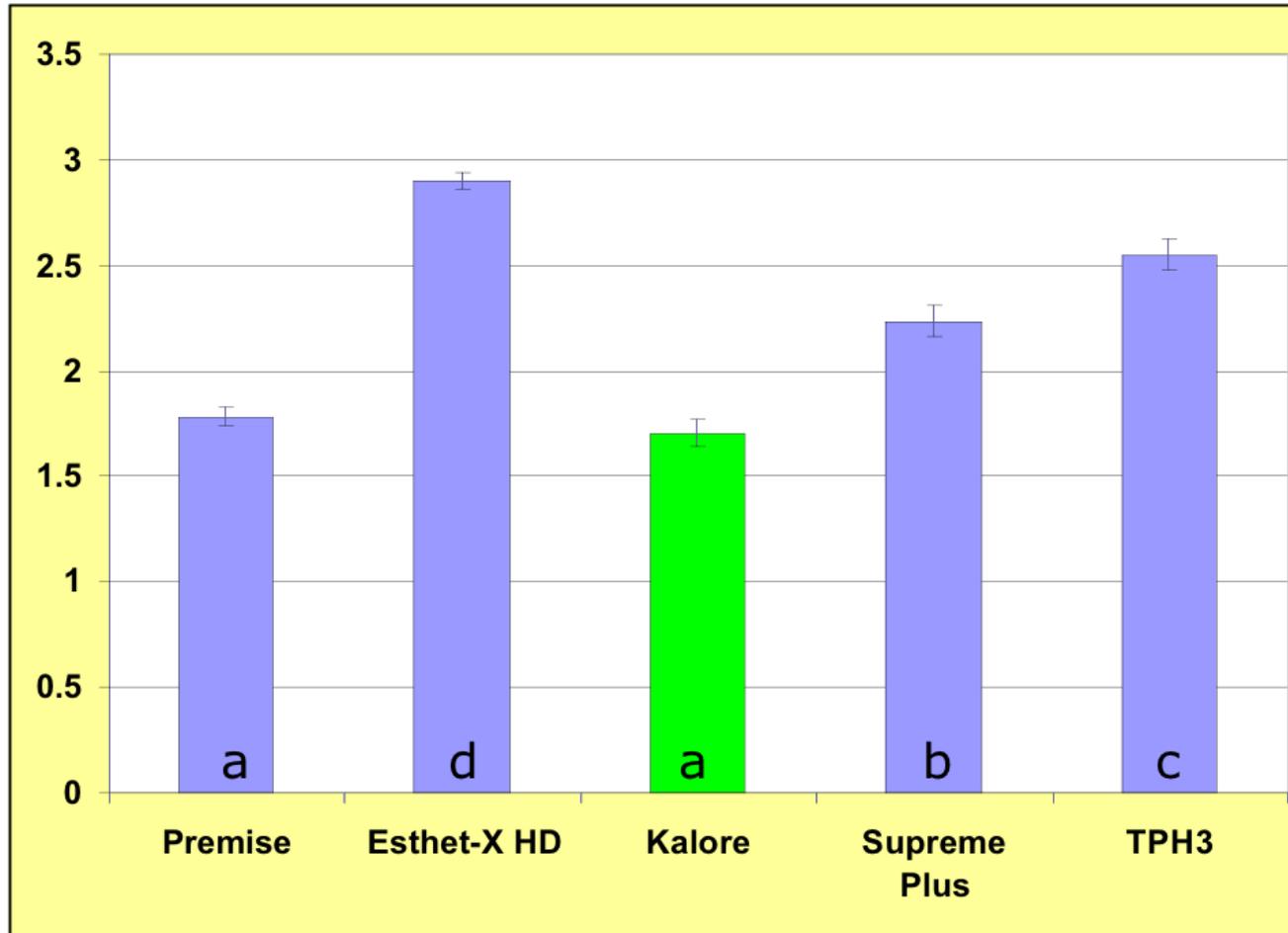
# Photoinitiator

## Camphorquinone (CQ)

- <1% by weight
- Spectral Curing range 400 – 500 nm
- Cures well with most standard Quartz Halogen Tungsten (QHT), PAC and LED Curing lights



# Volumetric Shrinkage (%)



**KALORE™ has one of the lowest % volumetric shrinkage of all composites tested.**

Protocol:

Shrinkage at 60 minutes by mercury dilatometer (ADAHF).

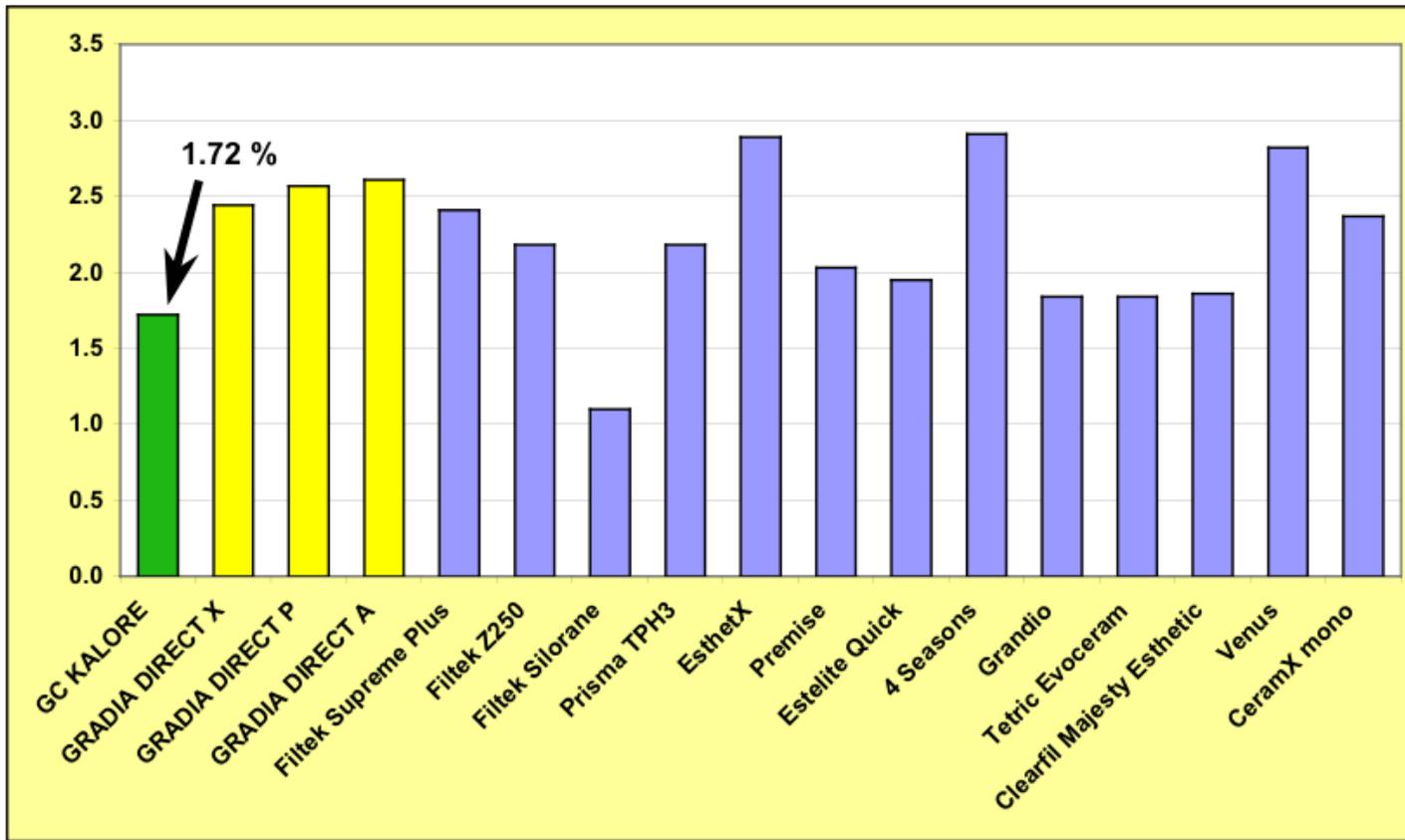
Volumetric Shrinkage (1 hour, Mercury dilatometer; n=3)

Means with the same lower case letter are not significantly different (1-way ANOVA/Tukey's;  $p = 0.05$ ).





# Volumetric Shrinkage (%)



**KALORE™ has one of the lowest % volumetric shrinkage of all composites tested.**

Protocol:  
ISO Draft Date: 2007-07-10  
Dentistry - Polymerization shrinkage of filling materials.

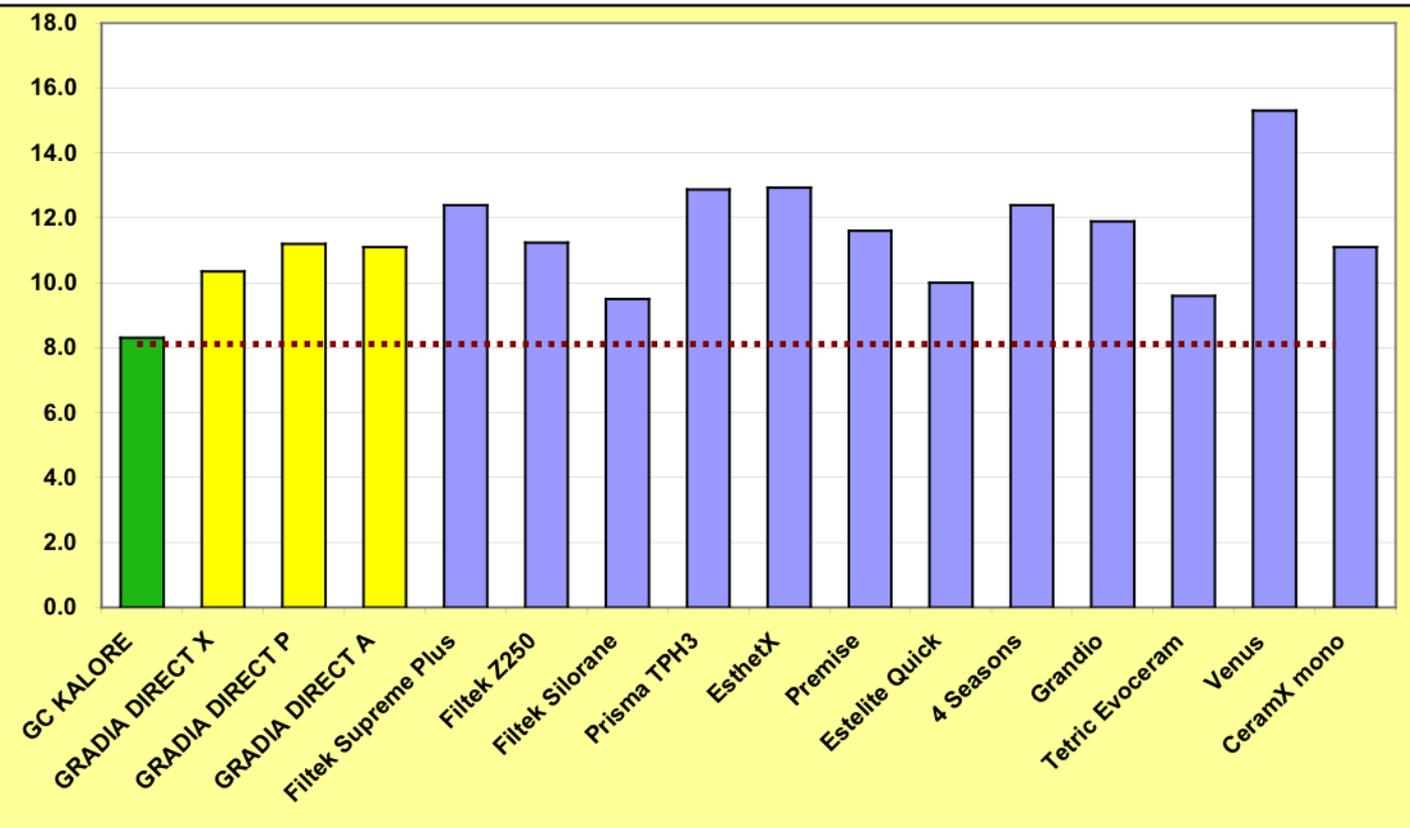


# Shrinkage Stress is Key

- During polymerization: resin matrix reduces in volume while fillers retain its volume.
- Stress within the cured composite can lead to early displacement of fillers.
- This is called Shrinkage Stress.

# Shrinkage Stress, N

(N)

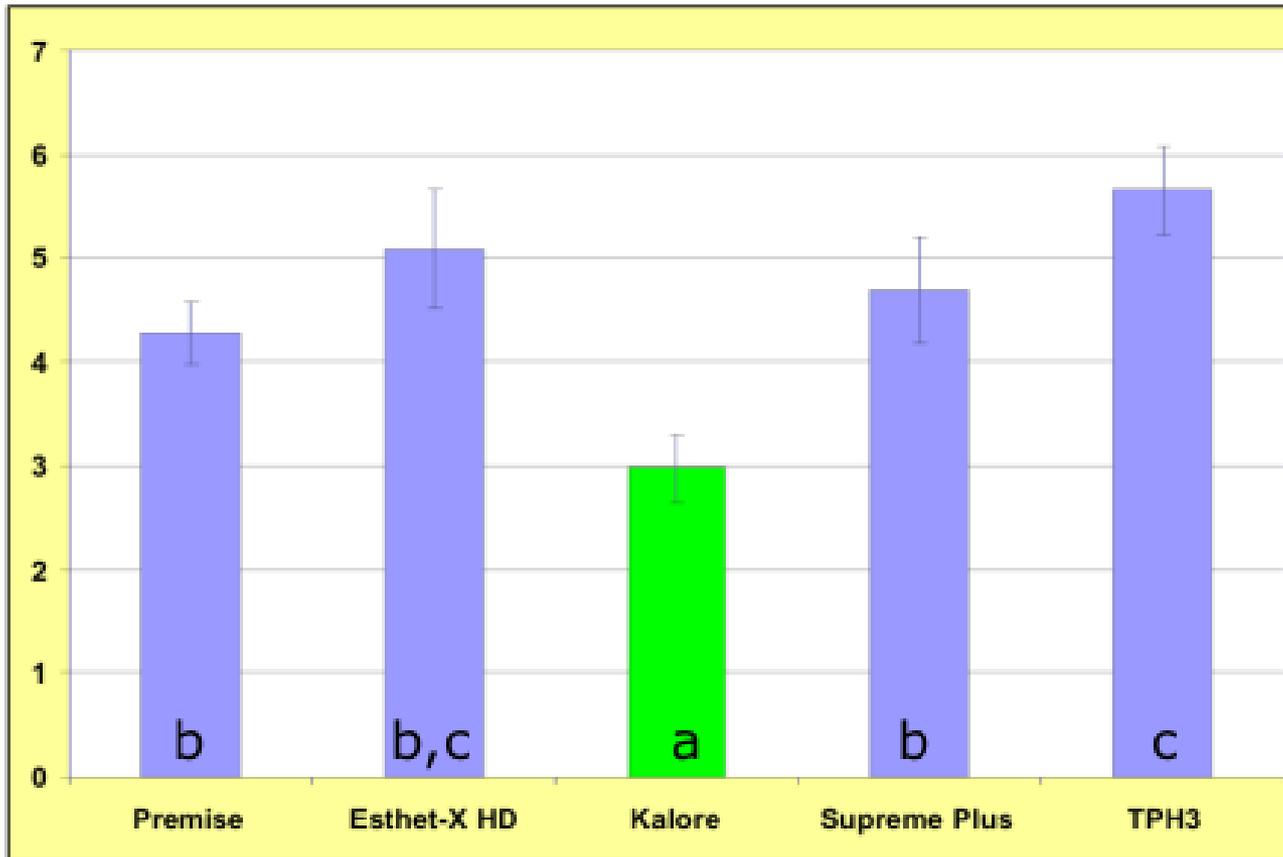


**KALORE™ demonstrated the lowest shrinkage stress of all competitive products tested.**

Protocol:  
Attach the jig on the universal test machine EZ-S (Shimadzu). Sandblast the slide glass surface and silane coupling treatment. Attach this slid glass on the jig. Place 1.66ml composite resin on the lower slide glass at the jig. Down the upper jig for 4 mm clearance from lower slide glass. Light cure 40 second from bottom side with GC G-light with 11 mm fiber rod. Light cure 20 second from top with GC G-light with 11 mm fiber rod. Measure 20 minutes and record highest load as shrinkage force.



# Shrinkage Stress, MPa



**KALORE™ had significantly lower polymerization contraction stress than all of the other composites.**

Protocol:

Contraction stress at 5 minutes using the Bioman cantilever device (Watts et al., 2003).

## Contraction Stress (5 minutes after light cure; Bioman; n=5)

Means with the same lower case letter are not significantly different (1-way ANOVA/Tukey's;  $p = 0.05$ ).

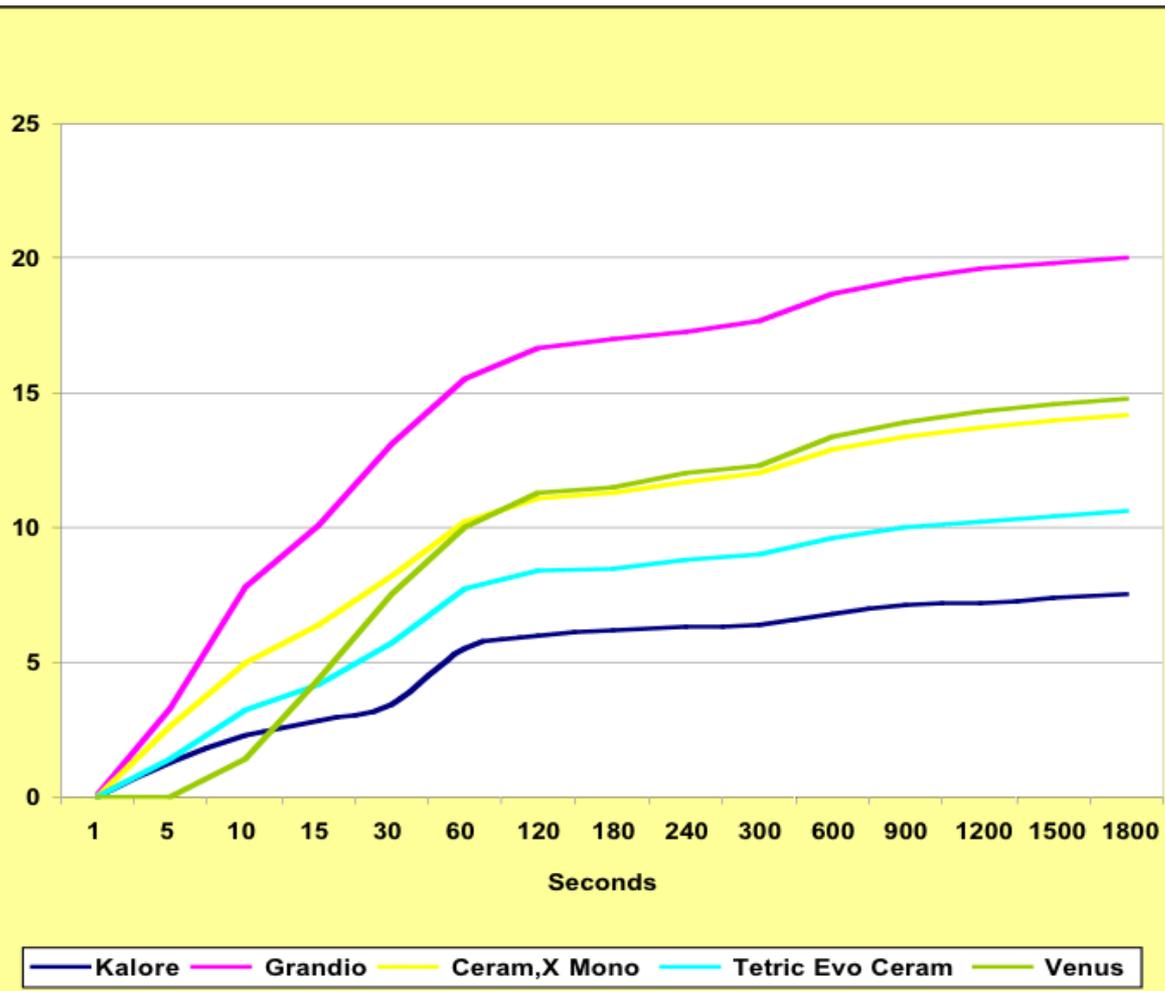
Source: Dr Jack Ferracane, "Evaluation of the Volumetric Shrinkage, Fracture Toughness and Polymerization Contraction Stress of a New Dental Composite", March 2009

# Volumetric Shrinkage, Time

**KALORE™ recorded the lowest volumetric shrinkage (over time) of all competitive products tested.**

Protocol:

Measurements were continuously recorded using a mercury dilatometer. Composite was applied to the bottom surface of a glass stopper, which was then inserted into the mercury of the dilatometer. The sample was light-cured through the glass for 40 seconds with an Elipar Highlight (750 mW/cm<sup>2</sup>). Shrinkage was recorded for 4 hours at 23 °C.



# KALORE's Total Package

## Benefit # 1: Superior handling-Complete Control is in Your Hands

- Non-sticky due to the patented HDR prepolymerized fillers.
- The DuPont monomer's stiff core and flexible arms create a putty-like property and makes it easier to spread.

**Result:** KALORE's unique properties allow for easy shaping and adaptation. KALORE is highly sculptable and non-slumping.



Photography and Dentistry by douglas, TX

# KALORE's Total Package

## Benefit # 2: Unsurpassed Aesthetics – Flawless Beauty, So Easy to Create.

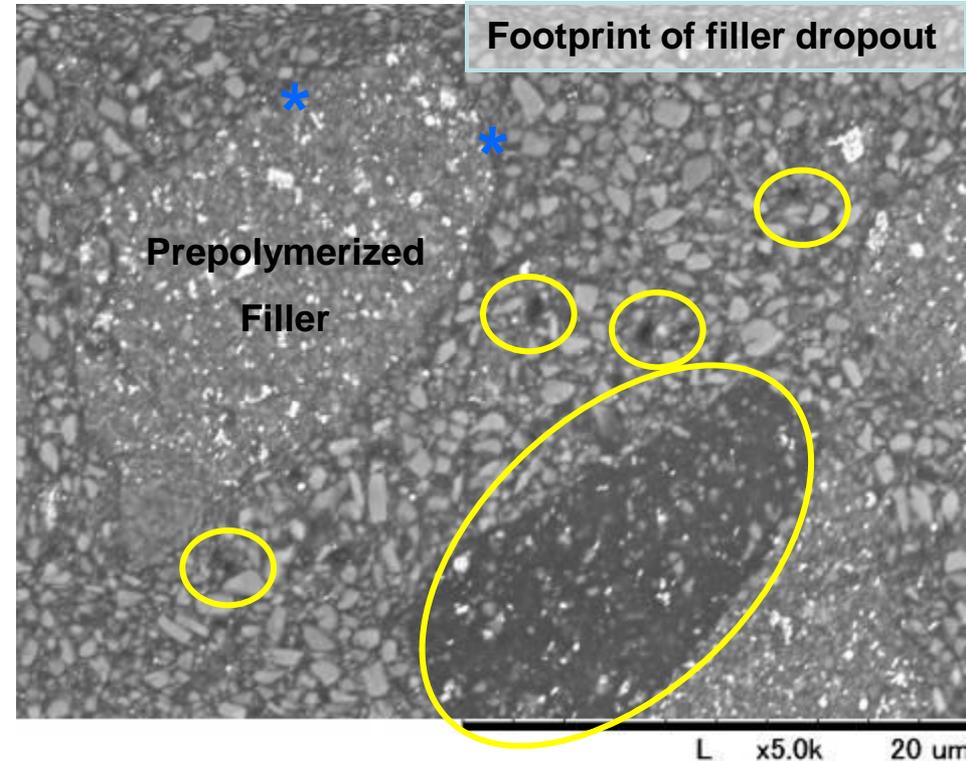
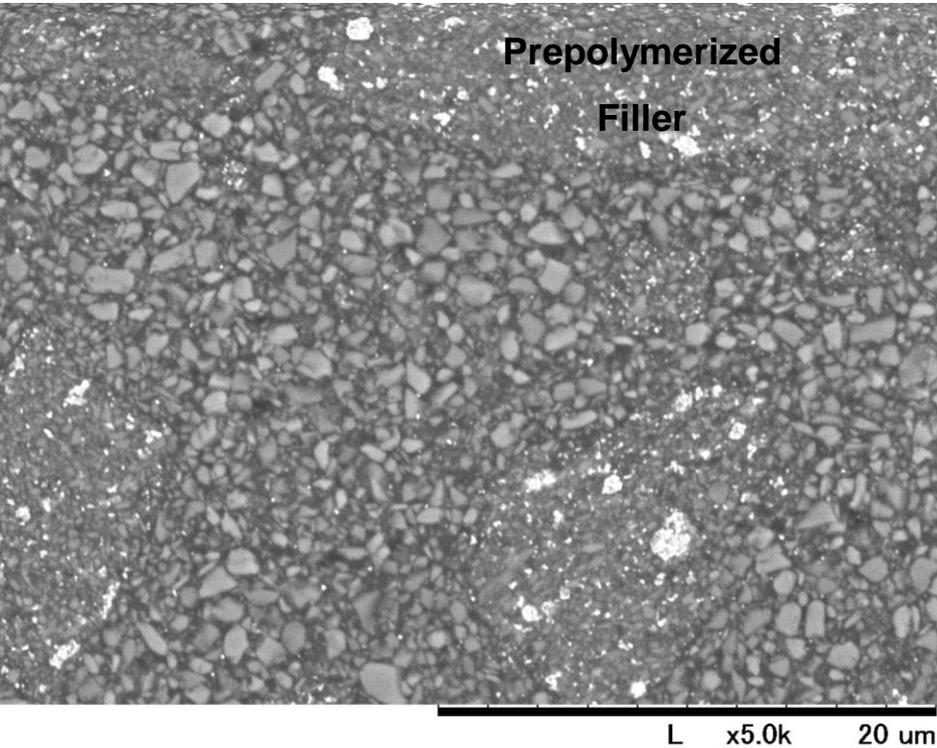
- Exceptional gloss
  - Easy polishability
  - Sustained luster
- } Lower shrinkage stress allows for less risk of filler dropout.
- Chameleon effect : Optimized refractive index of the filler and matrix result in near perfect matching.

**Result:** Unmatched aesthetic success and perfect restorations.

# KALORE's Total Package

KALORE with DuPont monomer

KALORE with conventional monomer



**No gap on prepolymerized filler interphase.  
No dropout fillers were observed.**

**Gap on prepolymerized filler interphase: \***  
**Dropout of fillers: ○**

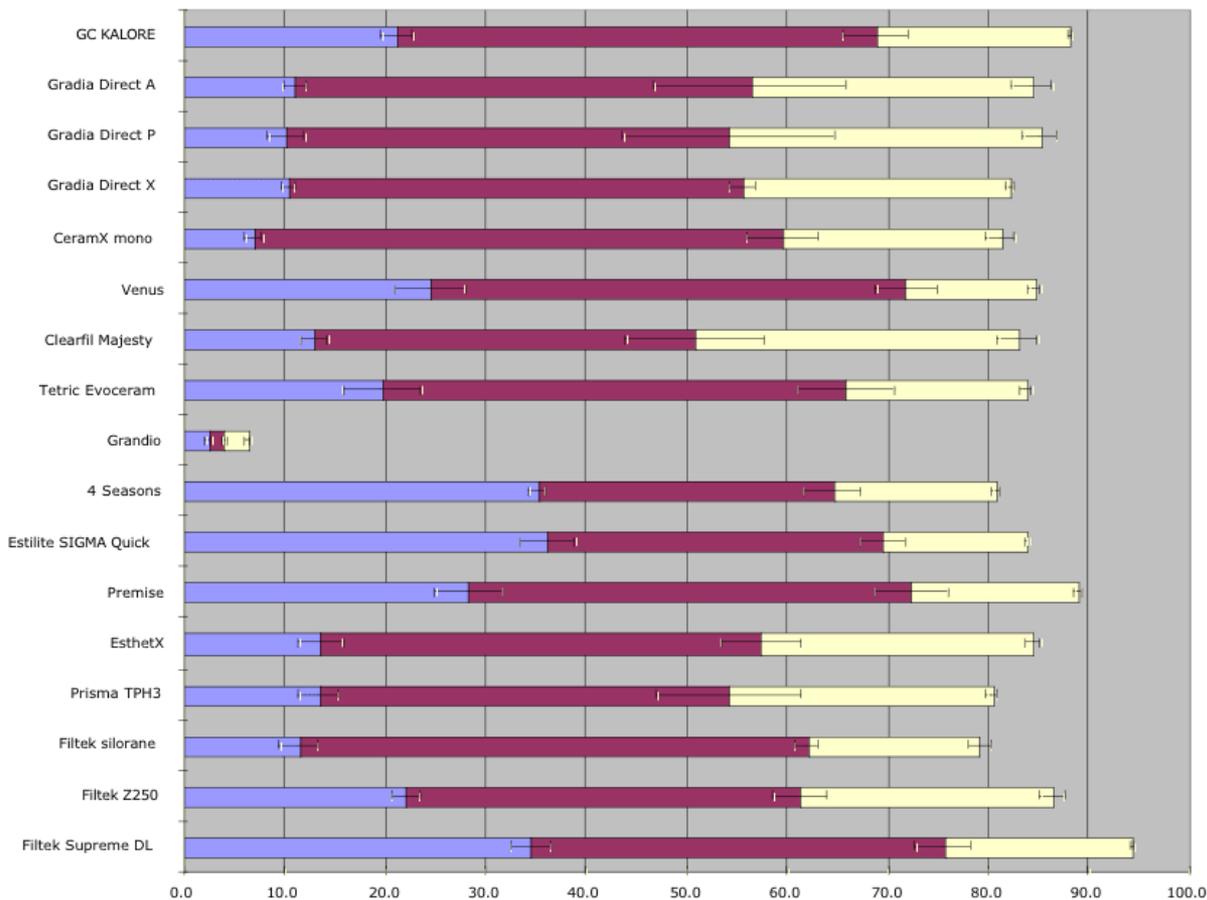
Source: GC Corp. R & D



Protocol: Prepare 15mm diameter and 1.5mm thick. Grind the surface by 600 grid paper. Polish the surface 2 minutes by Pre-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia Polisher paste.

# Surface Gloss, %

Gloss rate (%)



**KALORE™ was found to have a gloss rate among the highest of all materials tested.**

■ pre-shine  
■ dia-shine  
■ dia-polisher-paste

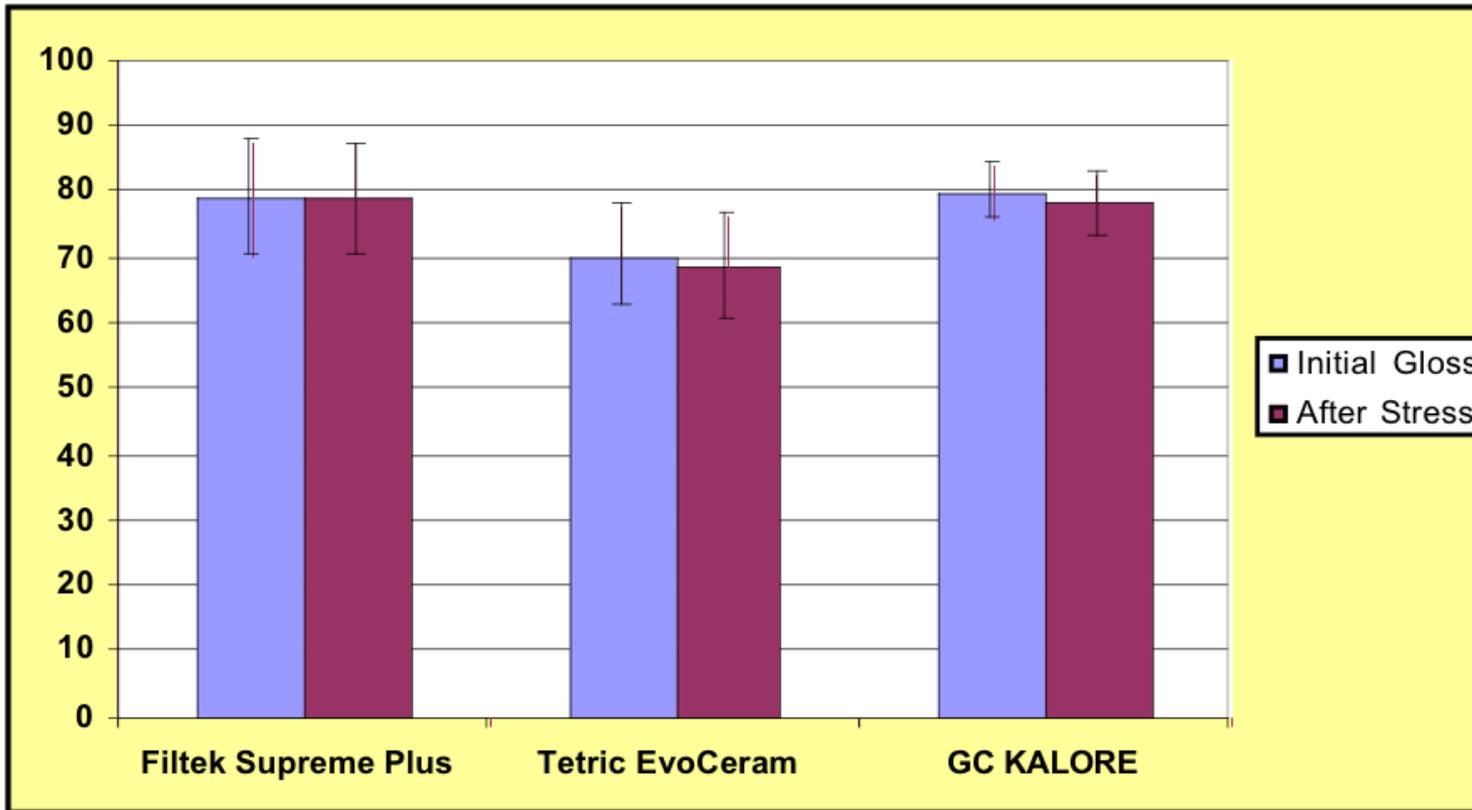
Protocol:  
 Prepare 15mm diameter and 1.5mm thick. Grind the surface by 600 grid paper. Polish the surface 2 minutes by Pre-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia Polisher paste. Measure the surface gloss rate with a VG-2000, Nippon Denshoku.



➔ Better

Source: GC Corp. R & D

# Surface Gloss Retention, %



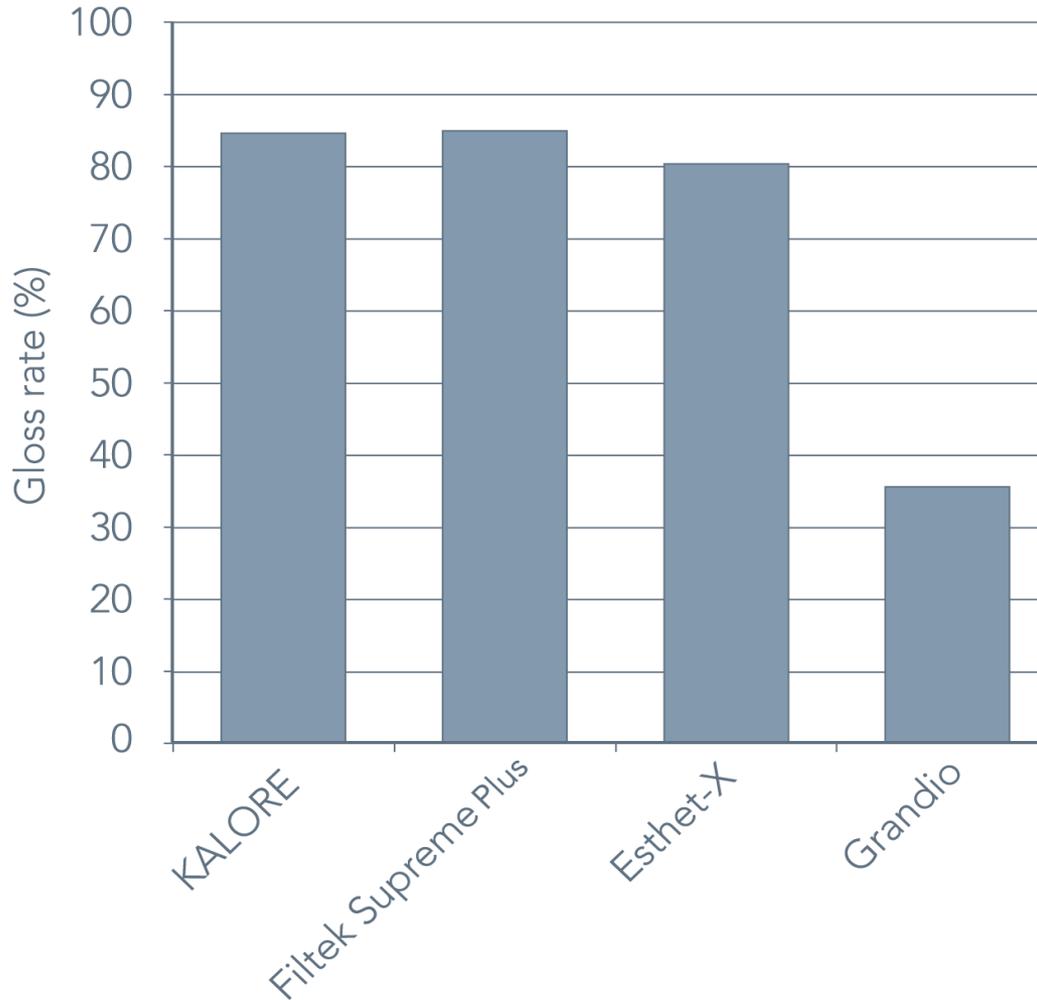
**KALORE™ has surface gloss retention consistent with other composites tested.**

**Protocol:**

- Composite specimens were prepared in the acrylic mold shown in Fig.1. Sample surface were polish using #80, #180, #320, #600, #1000, #1500 and #2000 emery paper followed by buff with 1micro m alumina. Surface gloss rate were measured after polish. Specimens were moved up and down along a 4 cm path at a rate of 30 strokes per minute and held in indirect contact with an acrylic plate under a load of 350 gf load and simultaneously, the sample holder slid horizontally along a 2 cm path at a rate of 30 strokes per minute.
- A mixture of PMMA and glycerol (1:1 vol%) was used as an intermediate abrasive. After 100,000 cycles (one complete lateral and vertical movement counts for one cycle), the surface gloss were measured.



# Gloss Rate



**KALORE™ has among the highest Gloss Rates tested.**

#### Protocol:

Prepare samples of 15mm diameter and 1.5mm in thickness. Grind the surface with #2000 grid paper. Polish the surface with PoGo. Measure surface gloss rate with a VG-2000, Nippon Denshoku.

# InViz' Effect

KALORE™ has excellent chameleon properties because its different internal components reflect and refract light similarly to the way teeth do.

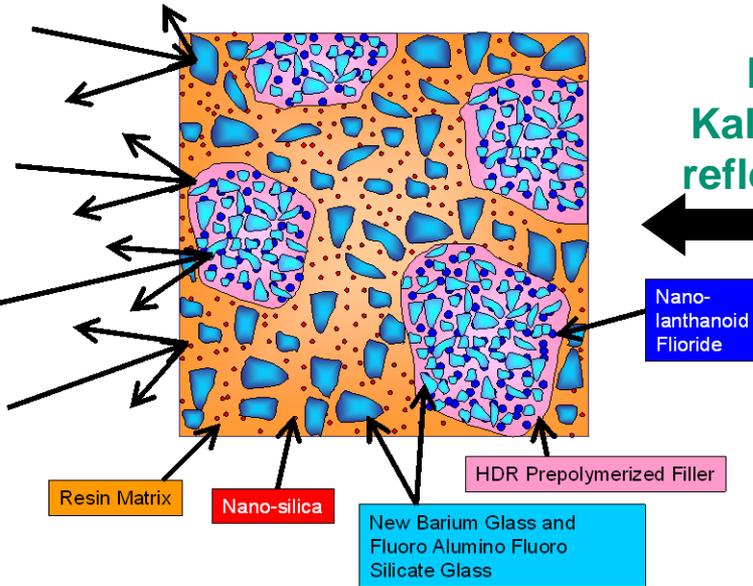
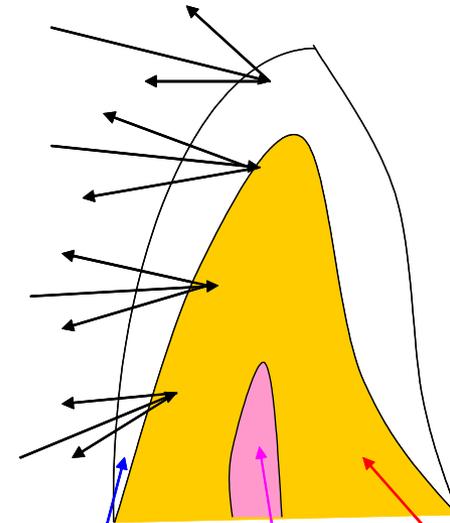
Reflection off of Kalore is the same as reflection off the tooth

Reflection by Enamel Crystals

Reflection by DEJ

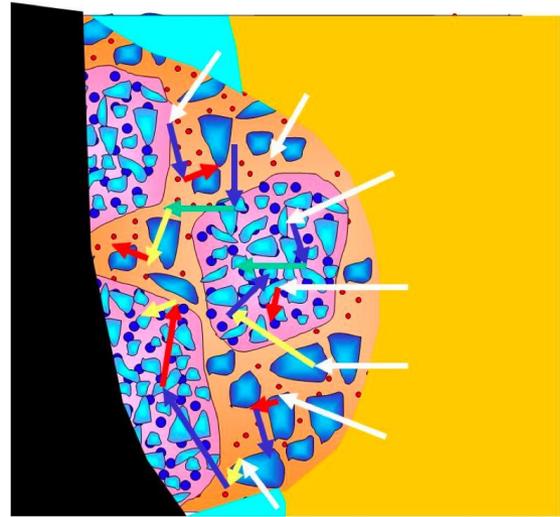
Reflection by Peritubular Dentin

Reflection by dentinal tubules



Nano-lanthanoid Fluoride

New Barium Glass and Fluoro Alumino Fluoro Silicate Glass



Diffused reflection in composite, and diffused reflection in tooth.

# KALORE's Total Package

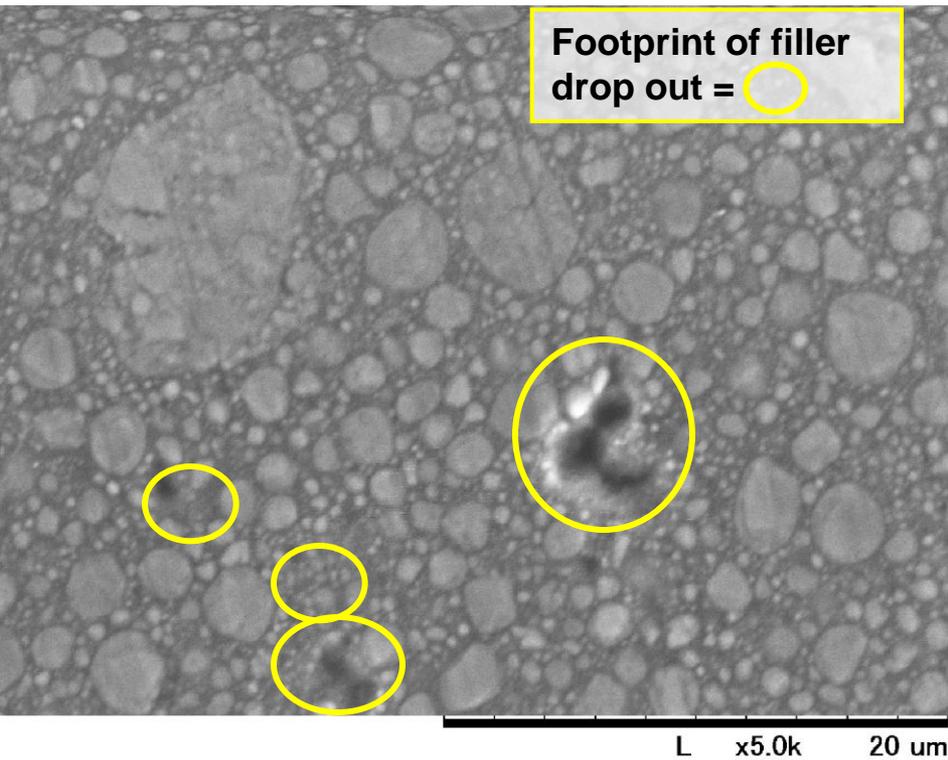
## Benefit # 3: Significant Longevity and Durability Sustained Form and Function

- The average restoration loses form, function and aesthetics in 3 to 4 years as the particles dropout due to shrinkage stress.
- } - Surface loses luster  
- Surface becomes rough  
- Surface picks up stains  
- Eventual wear and tear

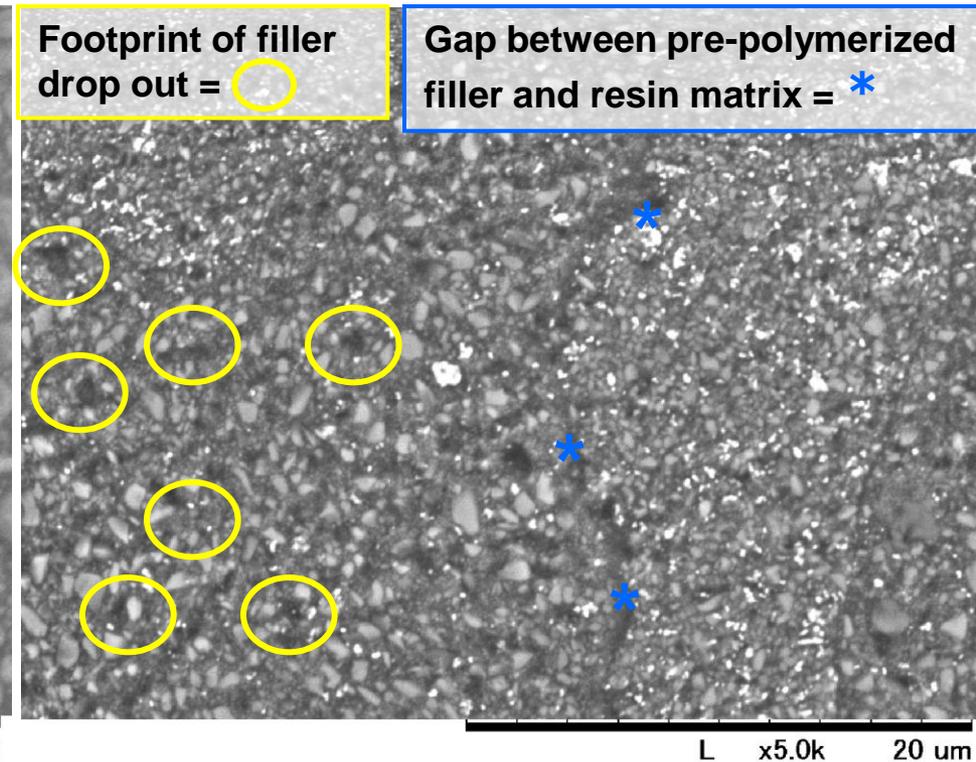
**Result:** KALORE™ keeps your restorations lasting longer by maintaining their form and function over time.

# KALORE's Total Package

Filtek Supreme Plus



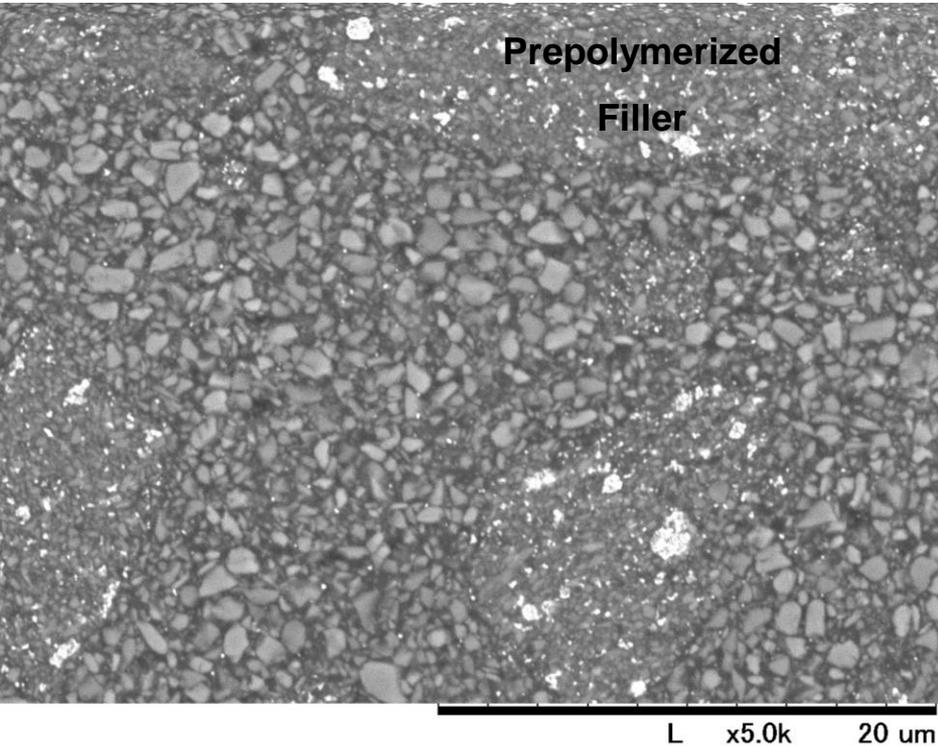
Tetric EvoCeram



Protocol: Prepare 15mm diameter and 1.5mm thick. Grind the surface by 600 grid paper. Polish the surface 2 minutes by Pre-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia Polisher paste.

# KALORE's Total Package

KALORE™

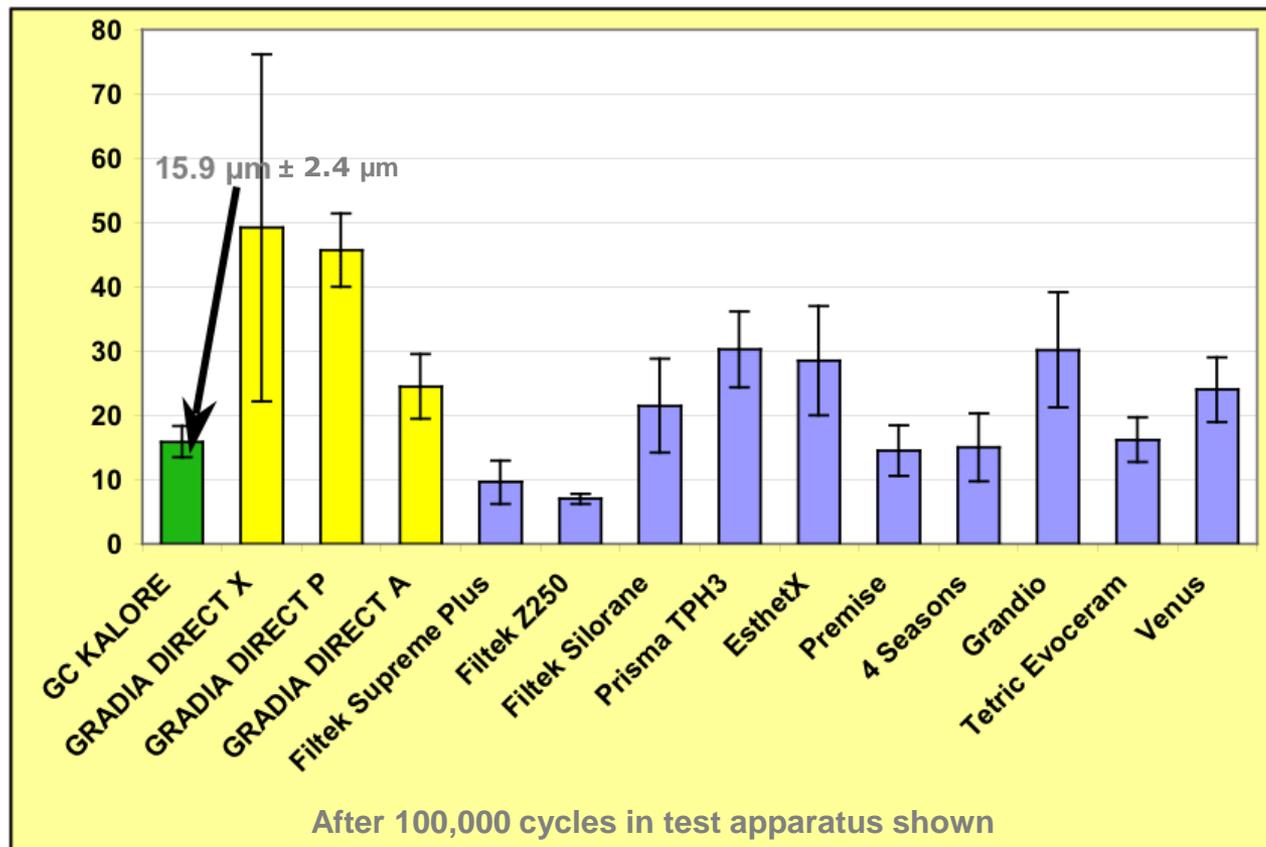


**KALORE's low shrinkage stress means less stress around the fillers and minimizing filler dropouts. The result is better longevity and durability for your restoration.**

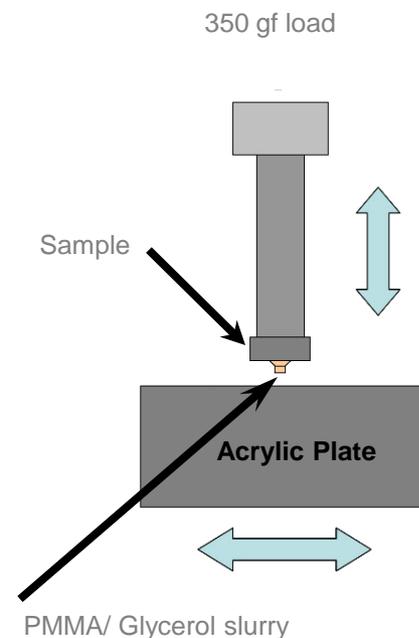
**No gap on prepolymerized filler-matrix interphase.  
No dropout fillers were observed.**

Protocol: Prepare 15mm diameter and 1.5mm thick. Grind the surface by 600 grid paper. Polish the surface 2 minutes by Pre-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia-Shine. Measure the surface gloss rate. Polish the surface 2 minutes by Dia Polisher paste.

# Three body wear test, $\mu\text{m}$



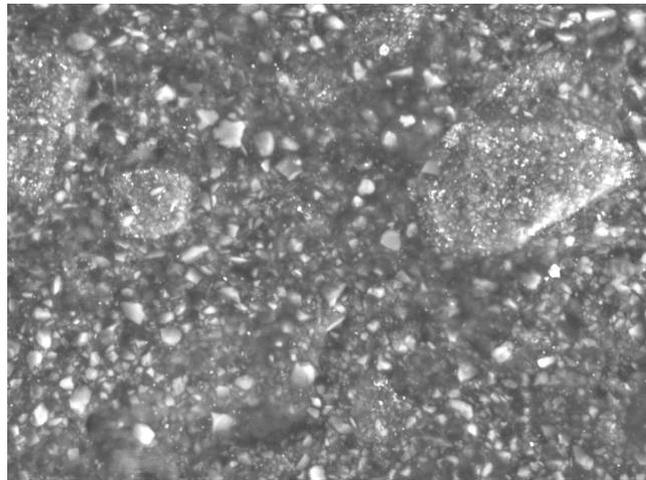
**KALORE™ has a very high resistance to 3-Body wear.**



## Protocol:

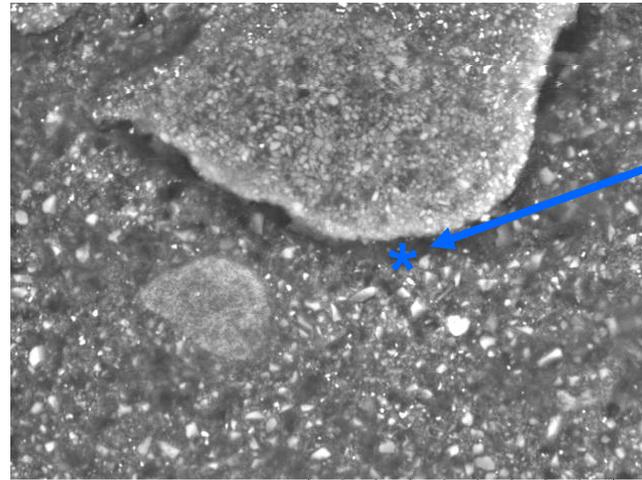
- Composite specimens were prepared. Specimens were moved up and down along a 5 cm path at a rate of 30 strokes per minute and held in indirect contact with an acrylic plate under a load of 350 gf load and simultaneously, the sample holder slid horizontally along a 2 cm path at a rate of 30 strokes per minute. A mixture of PMMA and glycerol (1:1 vol%) was used as an intermediate abrasive. After 100,000 cycles (one complete lateral and vertical movement counts for one cycle), the material wear was measured. The material wear was evaluated by the height loss.
- After this test, samples of a selection of composites were processed for SEM image taking.

# Three body wear test



KALORE™

L x5.0k 20 um

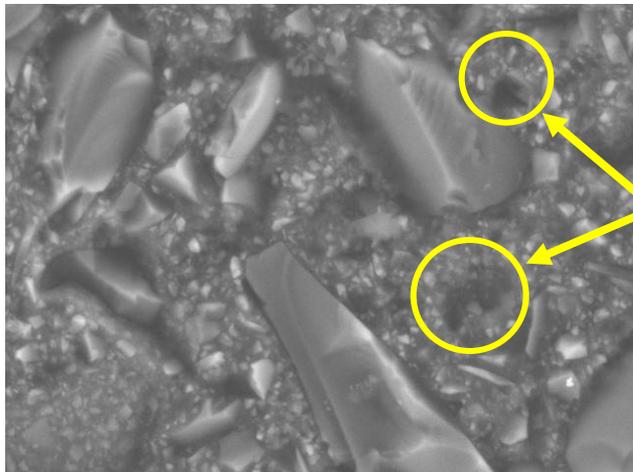


Tetric EvoCeram

L x5.0k 20 um

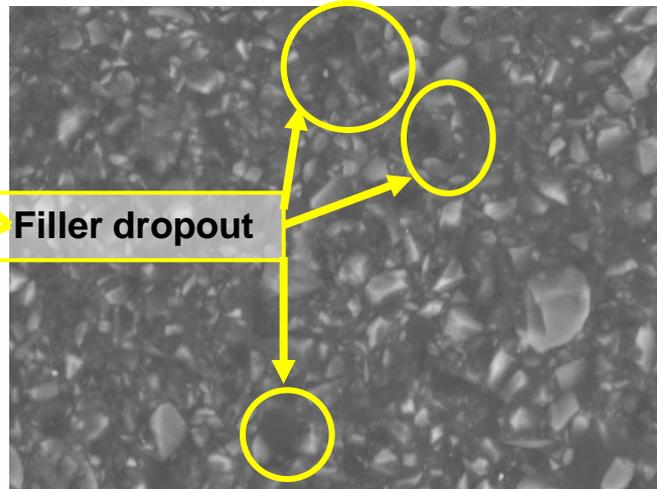
Gap at filler-matrix interphase

SEMs taken following 3-body wear tests show that KALORE™ retains excellent integrity between HDR prepolymerized filler and resin matrix. Other specimens show signs of particle loss and gaps between filler-matrix interphase.



Grandio

L x5.0k 20 um



TPH3

L x5.0k 20 um

Filler dropout

Protocol: Three-Body Wear Test, details on previous slide.

# Additional Physical Properties

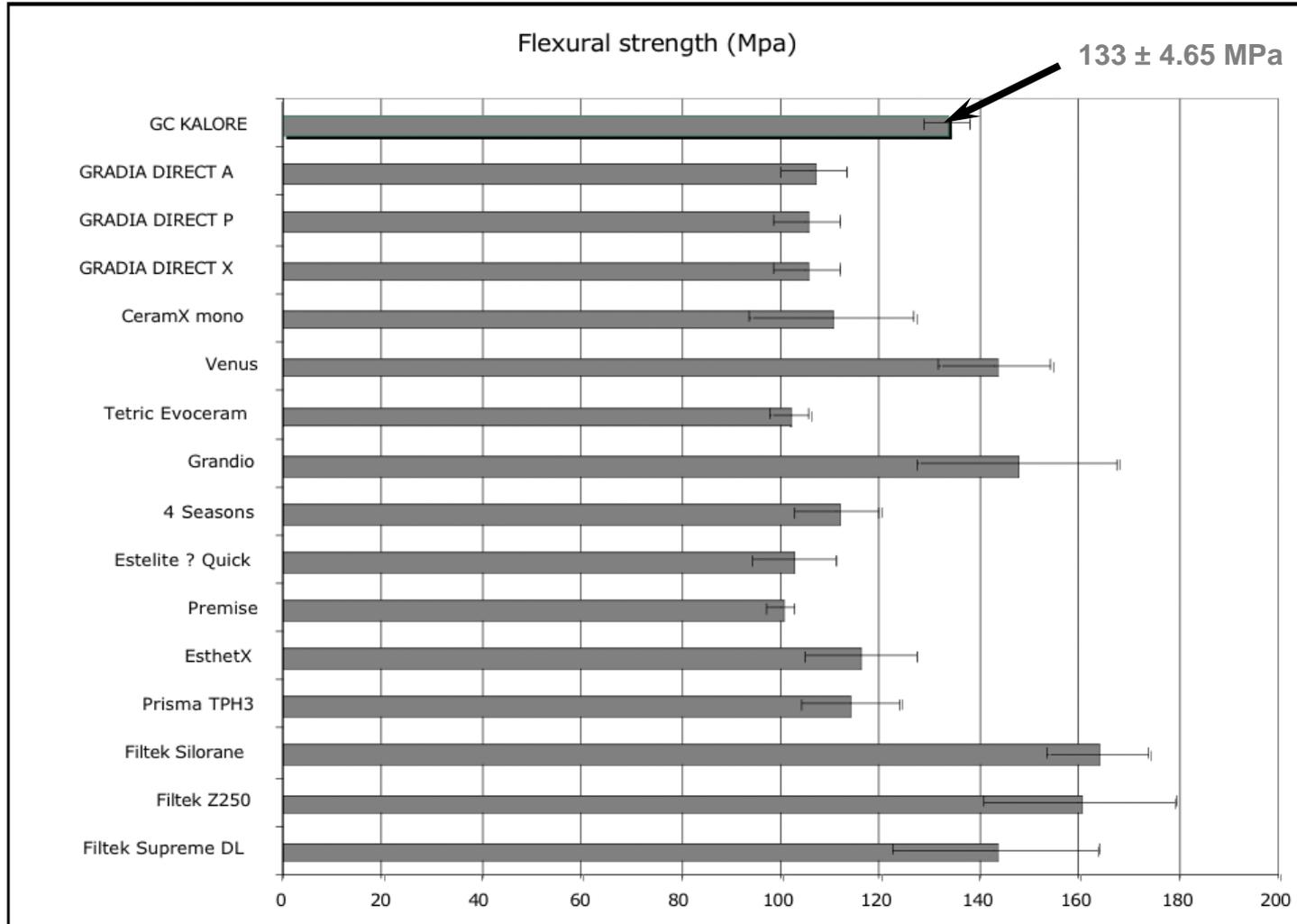


Flexural Strength  
Fracture Toughness  
Modulus of Elasticity  
Radiopacity

# Flexural strength, MPa



**KALORE™**  
THE SCIENCE BEHIND THE SMILE



**KALORE™ demonstrates amongst the highest of Flexural Strengths.**

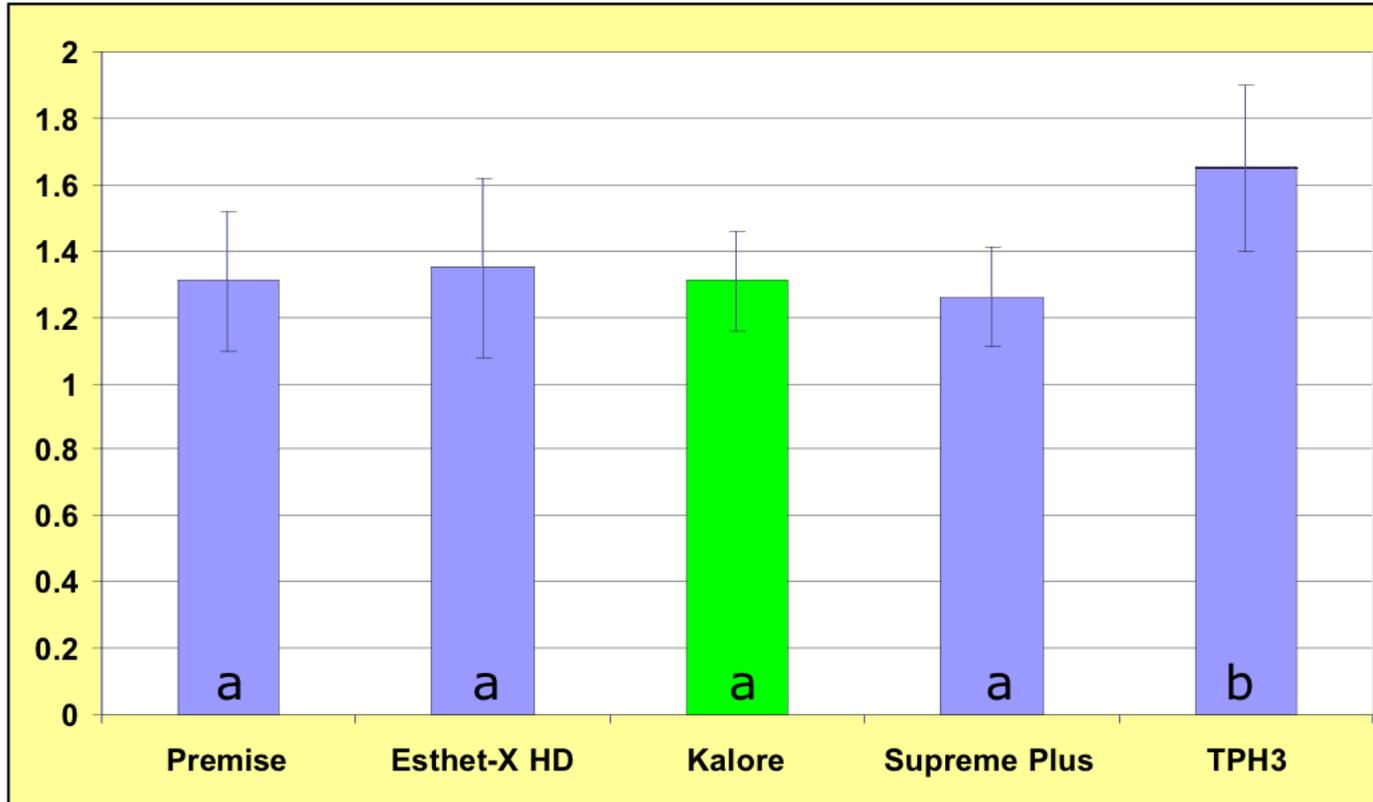
Protocol:  
ISO4049:2000



# Fracture Toughness, MPa m<sup>1/2</sup>



**KALORE™**  
THE SCIENCE BEHIND THE SMILE



Protocol:

Single-edge notch fracture toughness in three-point bending according to ASTM-E399.

**KALORE™ has fracture toughness consistent with other composites tested.**

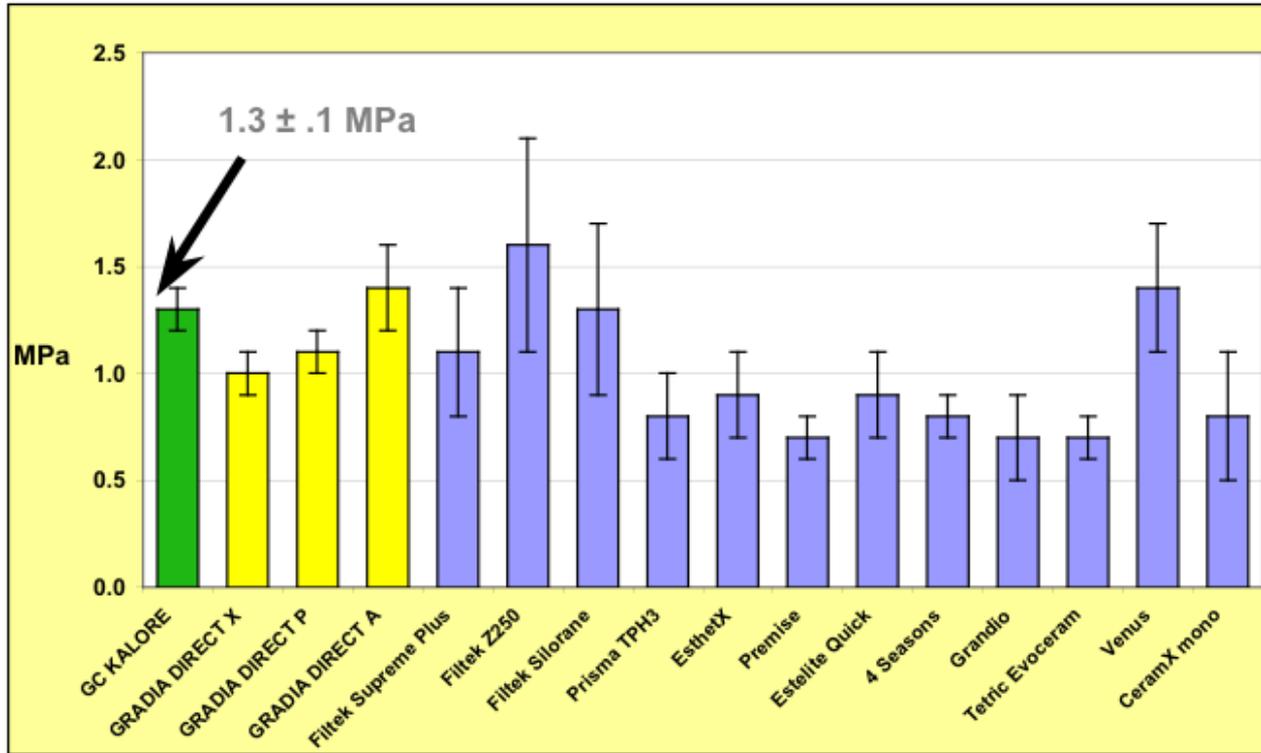
Fracture Toughness (24 hours; SEN; n=10)

Means with the same lower case letter are not significantly different (1-way ANOVA/Tukey's;  $p = 0.05$ ).



Source: Dr Jack Ferracane, "Evaluation of the Volumetric Shrinkage, Fracture Toughness and Polymerization Contraction Stress of a New Dental Composite", March 2009

# Fracture Toughness, MPa

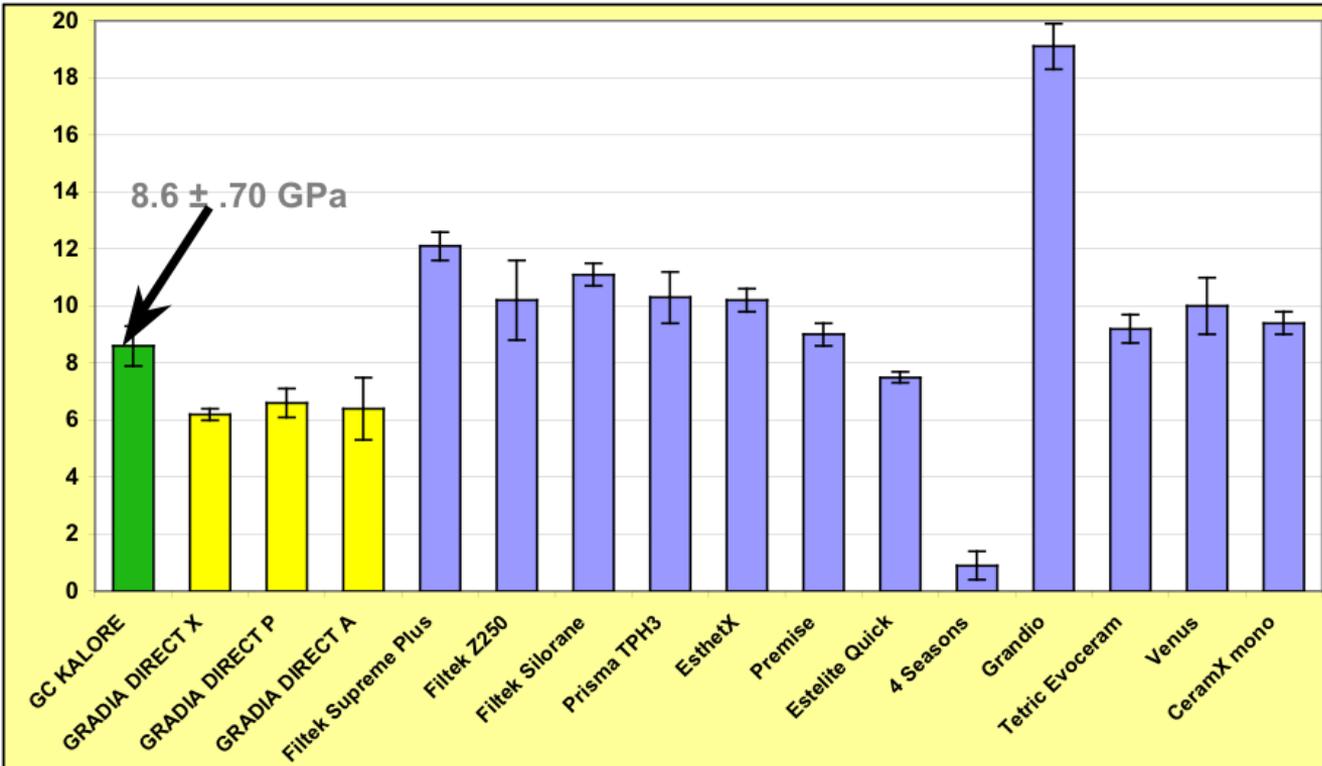


**KALORE™ demonstrates excellent “Fracture Toughness”.**

Protocol:

Test method is based on ISO4049:2000, Flexural strength test. Calculate total energy till sample break.

# Modulus of Elasticity, GPa



Ideally a material should not have a modulus of elasticity that is too high since brittle materials are not efficient in buffering masticatory pressures.

**KALORE™** has a Modulus of Elasticity that is not too high (and therefore too brittle), or too low (and therefore too elastic).

Protocol:

Test method is based on ISO4049:2000.

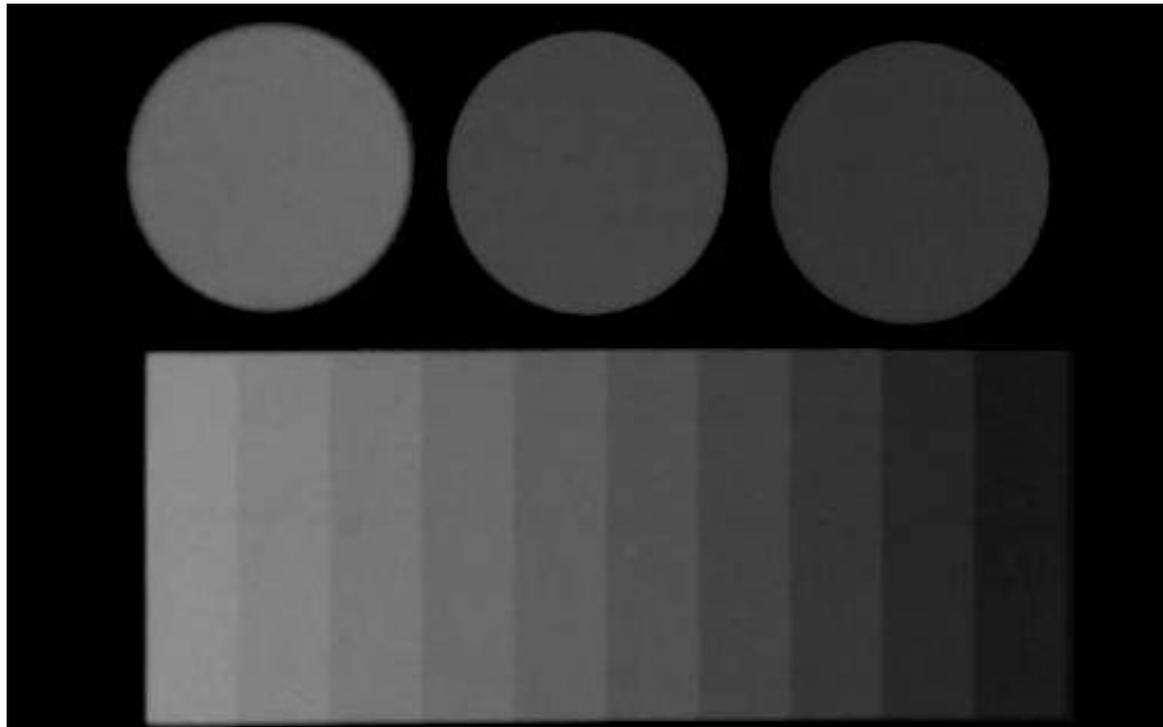
# Radiopacity

KALORE™ vs. Gradia Direct

KALORE™

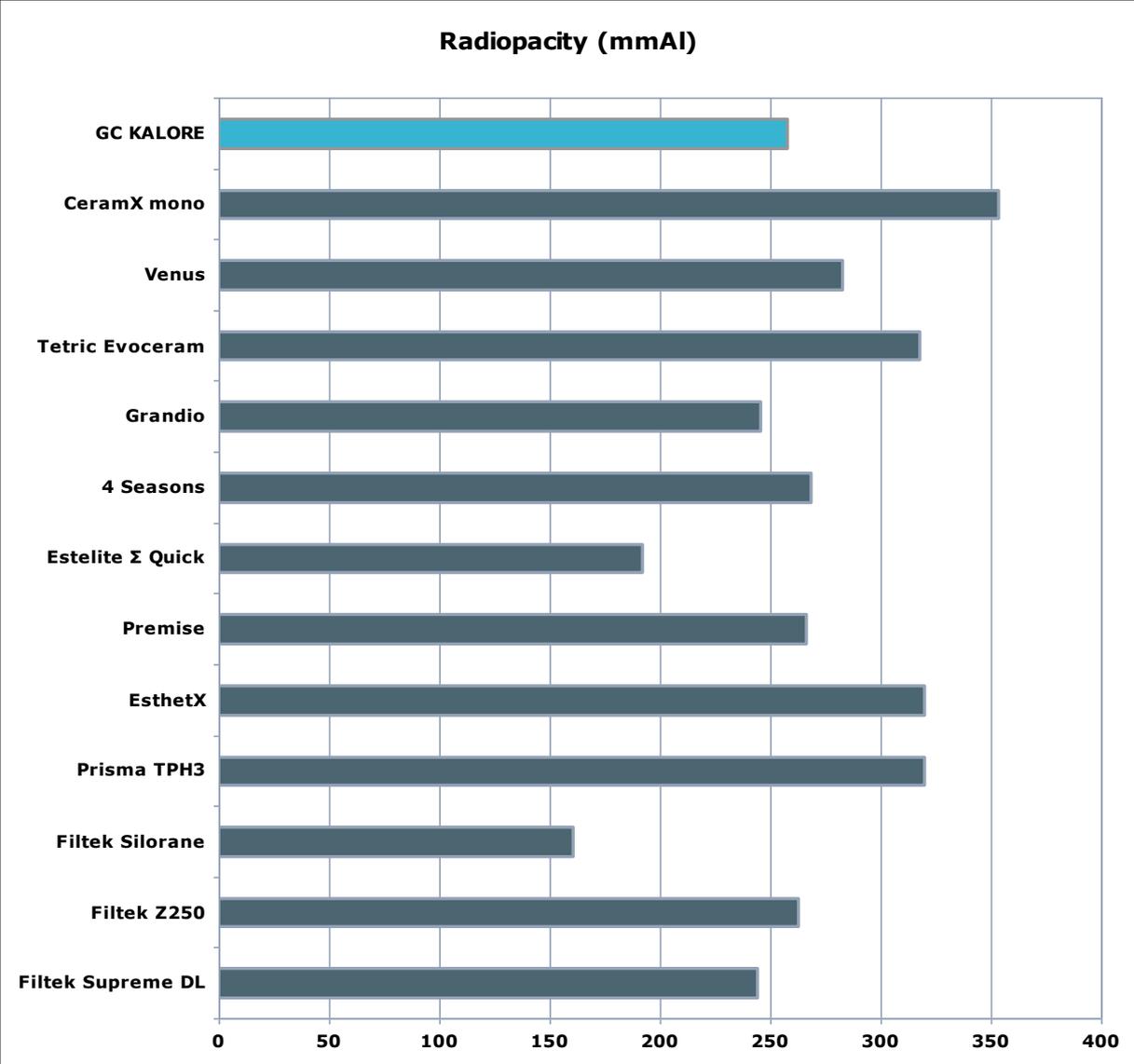
Gradia Direct X

Gradia Direct P



# Radiopacity

## KALORE™ vs. Competitors



**KALORE™ has Excellent radiopacity compared to the other composites tested.**



# Shade System



Universal  
Translucent  
Opaque

**26 Total Shades in 3 Different Opacities**

# Universal Shades

A1 A2 A3 A3.5 A4

B1 B2 B3

C2 C3

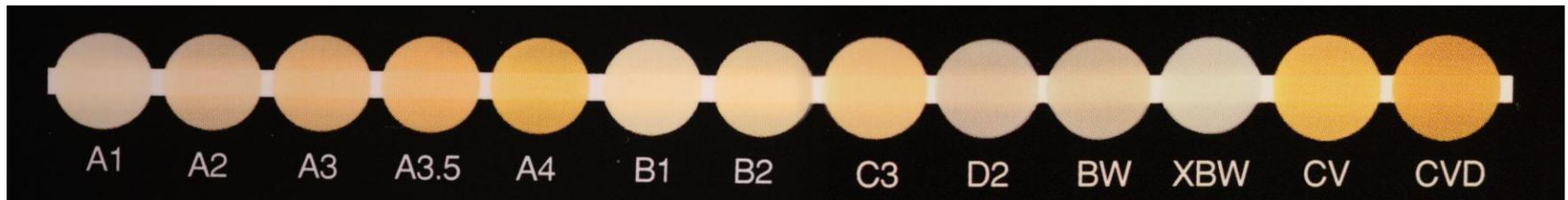
D2

CV = Cervical (B5)

CVD = Cervical Dark (B7)

BW = Bleaching White

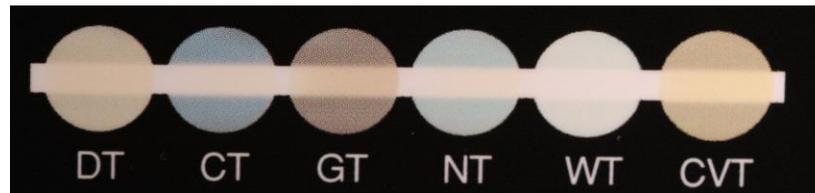
XBW = Extra Bleaching White



Universal shades have a very delicate balance between value, translucency, hue and chroma and were developed for a single-shade layering technique. They are grouped into A (reddish-brown), B (reddish-yellow), C (Grey), D (reddish-grey), Bleach and Cervical shades.

# Translucent Shades

- WT** (White Translucent)
- DT** (Dark Translucent)
- CT** (Clear Translucent)
- NT** (Natural Translucent)
- GT** (Gray Translucent)
- CVT** (Cervical Translucent)



The translucent shades provide the ability to give more “life” to the final restoration, and to mimic the value and age-dependent enamel changes. Due to the uniqueness of these shades a correlation to Vita Shades is not possible and the GC KALORE shade guide should be used.

# Opaque Shades (Dentin)

**AO2**

**AO3**

**AO4**

**OBW** (Opacious Bleach White)

**OXBW** (Opacious Extra Bleach White)



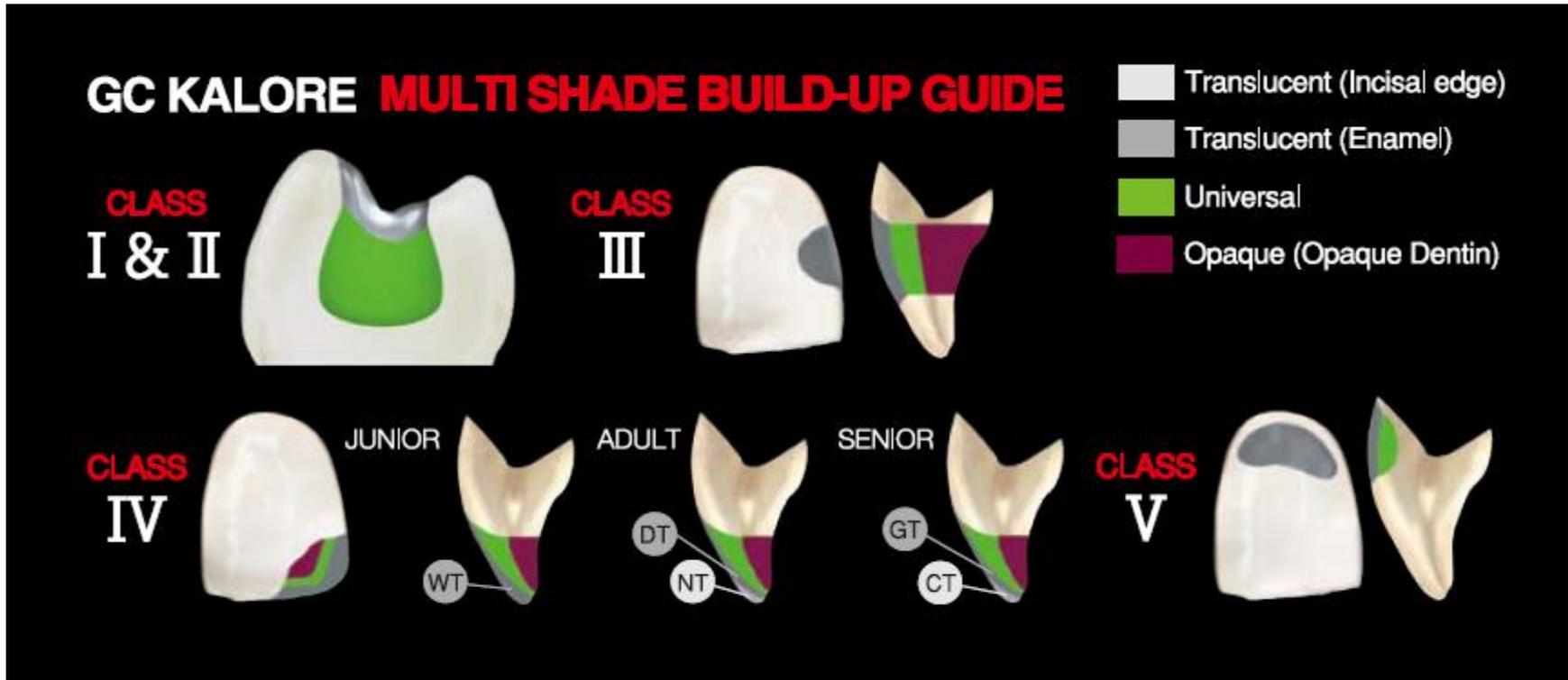
KALORE's Opaque shades are available as AO2, AO3, AO4, OBW and OXBW. Their increased opacity prevents light from the oral cavity being transmitted through the restoration, which would result in a darker appearance

# Polychromatic Stratification

Suggested Shade Combinations for multiple layers in deep and/or large cavities.

	A1	A2	A3	A3.5	A4	B1	B2	B3	C2	C3	D2	CV	CVD	BW	XBW
Opaque	OBW	AO2	AO3	AO3	AO4	OBW	AO2	AO3	AO3	AO4	AO2	AO4	AO4	OBW	OXBW
Universal	A1	A2	A3	A3.5	A4	B1	B2	B3	C2	C3	D2	CV	CVD	BW	XBW
Translucent	WT	WT	DT	DT	DT	WT	WT	DT	DT	DT	WT	DT	DT	WT	WT
Incisal	CT	NT	NT	NT	GT	CT	NT	NT	NT	GT	CT	CVT	CVT	CT	CT

# Multi shade Build-up Guide



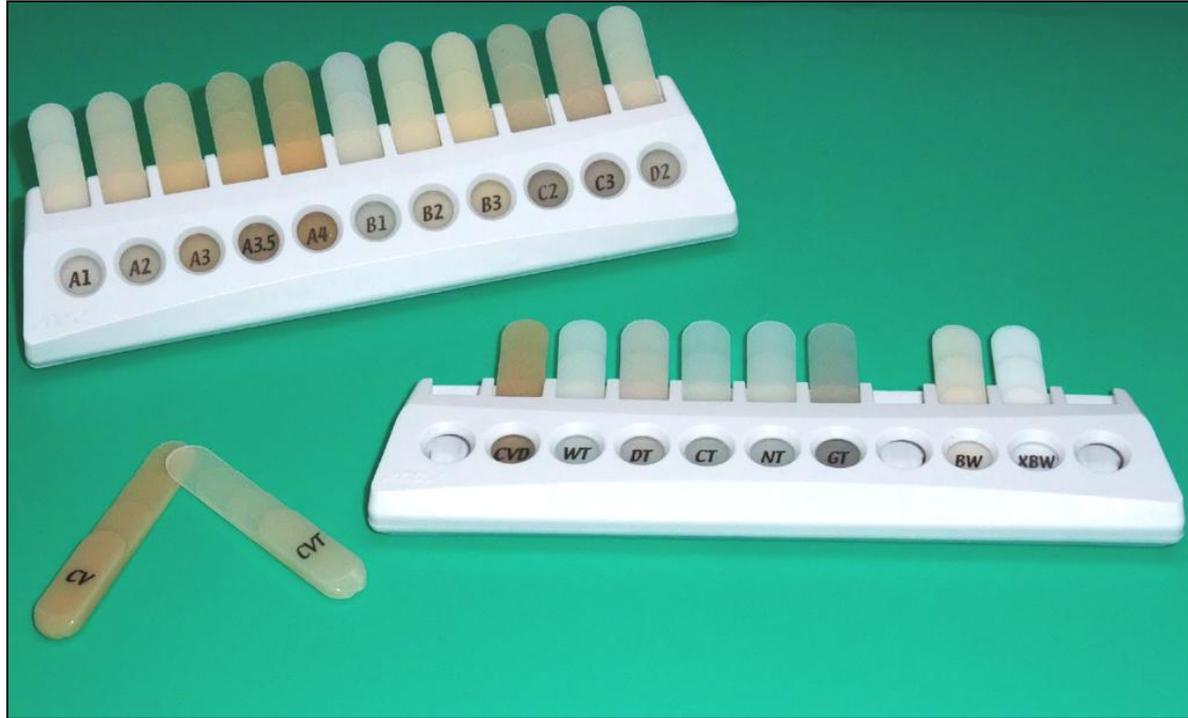
Included with Trial Kits

(Trial Kits contain 3 shades - A1, A2 and BW)

# Curing Times and Effective Depth of Cure

Curing Light Source	Curing Time, Seconds	Curing Time, Seconds
Plasma Arc Light (~2000mW/cm <sup>2</sup> )	3	6
GC G-Light (~1200mW/cm <sup>2</sup> )	10	20
Halogen / LED (~700mW/cm <sup>2</sup> )	20	40
GC Kalore Shade	Depth of Cure	Depth of Cure
CT, NT, WT, GT, CVT	3.0 mm	3.5 mm
A1, A2, B1, B2, D2, C2, XBW, BW, DT	2.5 mm	3.0 mm
A3, B3, A3.5	2.0 mm	3.0 mm
A4, C3, AO2, AO3, AO4, CV, CVD, and OBW, OXBW	1.5 mm	2.5 mm

# KALORE™ Shade Guide



The KALORE™ Shade Guide utilizes stepped shade tabs so the clinician can evaluate variations in shade due to thickness. The tabs can also be superimposed to evaluate layering effects.

The KALORE™ shade system is based on Vita® Classic.



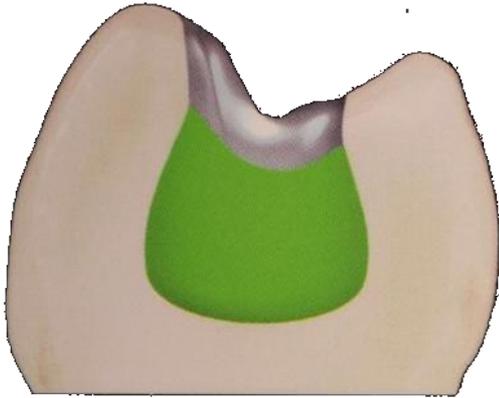
## Clinical Applications

# Clinical Indications

- Direct composite restorations of Class I, II, III, IV and V Cavities
- Restoration of “wedge shaped defects” and root surface caries
- Facings and veneers
- Diastema closures



# Class I and II Direct Restorations



-  Translucent Shade
-  Universal Shade



Dentistry by Dr. Wynn Okuda, HI

# Class I Direct Restoration

“Single Shade KALORE™ A2 Universal Only”



Dentistry by Dr. Mark Pitel, NY

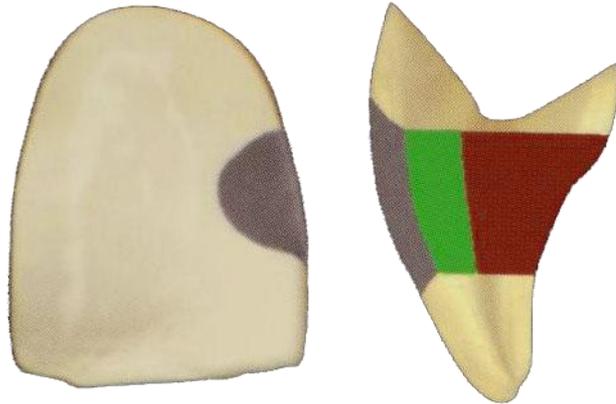
# Class II Direct Restorations

“Single Shade Kalore A2 Universal Only”



Dentistry by Dr. Mark Pitel, NY

# Class III Direct Restoration



-  Translucent Shade
-  Universal Shade
-  Opaque Shade



Dentistry by Dr. Wynn Okuda, HI

# Class IV Direct Restorations



Translucent Shade



Universal Shade



Opaque Shade

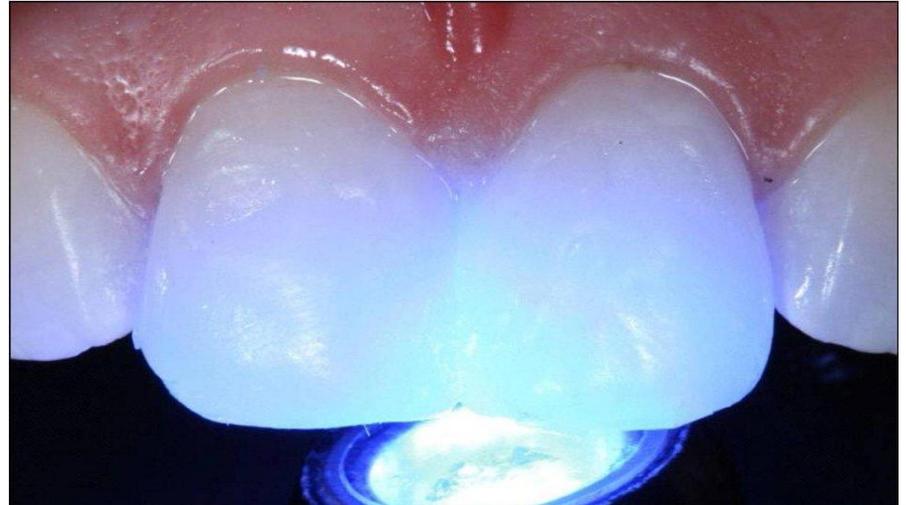


Dentistry by Dr. Frank J. Milnar, MN

# Class IV Restorations



# Class IV Restorations



After



# Class V Restoration



Dentistry by Dr. Wynn Okuda, HI

# Diastema Closure Restorations



Photography and Dentistry by douglas, TX

# Direct Veneer Restorations



# Fractured Enamel

#8 fractured



Prep



Etch

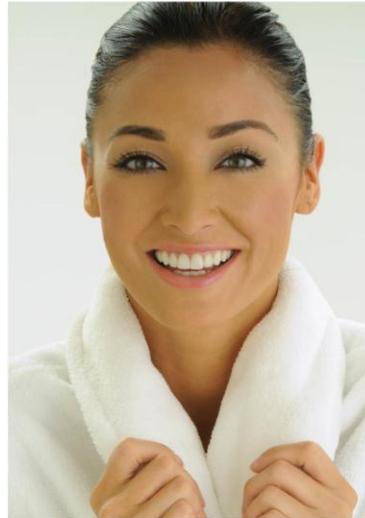


Kalore  
BW with  
NT



Dentistry by Dr. Stewart

# Miss Hawaii 2009 with KALORE™



Aureana Tseu



# Available Dispensing Options



**Single Dose Unitips**  
0.3g / 0.16mL per tip



**Multiuse Syringes**  
4g / 2.0mL per syringe

# Available Product Packaging





# KALORE™ Trial Kits



**Unitip Trial Kit\***  
50 Unitips in 3 Shades



**Syringe Trial Kit\***  
1 each 4 g syringe in 3 Shades



\*Trial Kit contains 3 shades (A1, A2 and BW)

# KALORE™ Refills



**Unitip Refills**  
All 26 Shades

# Marketing Collaterals – 6 page brochure



**KALORE**  
THE SCIENCE BEHIND THE SMILE





# Marketing Collaterals – 6 page brochure

Witness the Discovery  
of a Revolutionary Composite

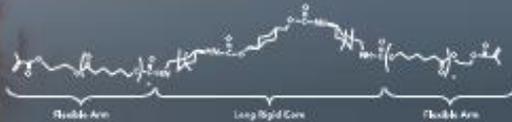


An Innovation in Restorations  
Using Exclusive, New Monomer Technology from DuPont

Your Search is Over – KALORE™ is Here.

Dentistry has relied on the same basic monomer technology in its materials for decades with advances in resin technology being primarily on the filler side (filler size, filler shape, filler type, etc.). The newest innovation from GC America utilizes an exclusive new monomer technology from DuPont to create a truly revolutionary TOTAL PACKAGE in aesthetic restorations.

NEW Monomer Technology from DuPont™



KALORE challenges the status quo by taking aesthetic restorations to the next level – making them more sculptable, easier to polish with exceptional gloss and highly resistant to wear.

Three components factor into KALORE's unique design. First, DuPont's new monomer technology licensed exclusively to KALORE. Second, GC America's newly-developed, patented HDR (High Density Radiopaque) prepolymerized fillers. Finally, the proprietary interface between the filler and the matrix is a critical factor in the success and longevity of this composite. With innovation from every angle, KALORE truly offers the total package of:

- Superior handling
- Unsurpassed aesthetics
- Significant longevity & durability

KALORE™ represents the perfect discovery of science and beauty – the total package in aesthetic restorations that has eluded you for so long. Until now.

**Benefit #1: Superior Handling – Complete Control is in Your Hands**

- KALORE is non-sticky due to the new, patented HDR filler technology
- The DuPont monomer's stiff core and flexible arms create putty-like properties and make it easier to spread

**Result:** KALORE's unique properties allow for easy shaping and adaptation to the restoration surface. KALORE is highly sculptable with no slumping.

**Benefit #2: Unsurpassed Aesthetics – Flawless Beauty, So Easy to Create**

- Exceptional gloss: } The lower shrinkage stress of the filler-matrix interface allows for less risk of filler dropout.
- Easy polishability: }
- Sustained luster: }
- Chameleon effect: The optimized refractive index of the filler and monomer matrix result in near-perfect color matching

**Result:** Unmatched aesthetic success and perfect restorations for you and your patients.



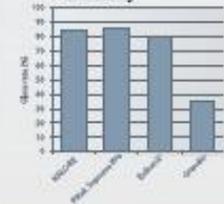
Courtesy of Douglas Design Technique International



Courtesy of Dr. Frank J. Milosevic, D.D.S., M.D.

At the end of the day it all comes down to how well a composite looks when the patient smiles. KALORE delivers the superior results the dental community has come to expect from GC America.

Polishability



SEM #1



KALORE with DuPont Monomer – No gap or prepolymerized filler surface; no dropout filler was observed.

SEM #2



KALORE without DuPont Monomer – Slight gap or prepolymerized filler surface; dropout prepolymerized filler was observed.

"I believe this new monomer formulation has solved the shrinkage challenge by removing the weak link – the shorter chain methacrylate matrix. This new system provides the potential for reducing the clinical challenges such as marginal gap, microleakage, stain and secondary caries while enhancing the aesthetic and wear resistance."

– Douglas Design Technique International

GC

# Marketing Collaterals – 6 page brochure

## The Science Behind the Smile – PROVEN!

The proof is in the result and the perfect results achieved by using KALORE™ are exemplified in Aureana Tsui – Miss Hawaii, 2009 (see photos at right). In an arena where perfection is a requirement, the qualities of KALORE made it the material of choice to highlight and complement her exceptional beauty as she pursued her quest for Miss USA 2009.

"Amazing! KALORE is not only so easy to use, it polishes and feels like porcelain. With its remarkable chameleon effect and low marginal shrinkage, this composite resin has tremendously moved the bar up to a new plateau in aesthetic restorative materials."

– Dr. Wynn Okada, DMD, Past President, AACD, Honolulu, HI



Courtesy of Dr. Wynn Okada,  
Honolulu, HI

### Benefit #3: Significant Longevity and Durability – Sustained Form and Function

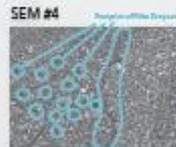
During polymerization of composite resin, the resin matrix reduces in volume while the particles retain their prepolymerization volume. This results in stress at the filler and resin matrix interface. This stress remains within the cured composite resin and can lead to early replacement of restorations, as particles will be lost from the matrix. To reduce polymerization stress at the filler/matrix interface, lower levels of polymerization shrinkage are required.

The average restoration loses form, function and aesthetics between three to four years as the particles drop out due to shrinkage stress. This causes:

- Surface to lose luster
- Surface to become rough
- Stains to become evident
- Greater wear and tear overall

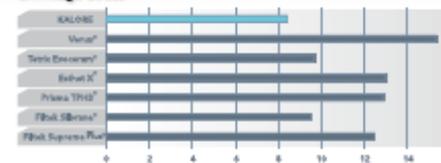
KALORE's unique design results in the lowest shrinkage stress vs. the competition which means less stress around the fillers and better durability and longevity for the restoration.

Result: KALORE keeps your restorations beyond compare longer by maintaining their form and function over time.



## KALORE™ : A Recipe for Your Success

### Shrinkage Stress



KALORE clearly exhibits the lowest shrinkage stress amongst those tested.

KALORE offers three opacities for precision shade matching and blending. Whether you choose to use a single shade or multiple shades for polychromatic stratification, your restorations will look as beautiful as a ceramic restoration, as smooth and perfect as porcelain.

In 90% of cases, the use of a Universal shade will be sufficient. In the remaining 10% – those "special" cases – a combination of Universal, Opaque and/or Translucent shades would be selected. KALORE's simplified shade system gives you a "recipe" to follow for perfection and total control in your restoration aesthetics.

### KALORE's Simplified Shade System

	A1	A2	A3	A3.5	A4	B1	B2	B3	C2	C3	D2	CV	CVD	BW	X2W
Opaque	OW	AO	AO	AO	AO	OW	AO	OW	OW						
Universal	A1	A2	A2	A3.5	A4	B1	B2	B3	C2	C3	C3	C3	C3	BW	X2W
Translucent	WT	WT	DT	DT	DT	WT	WT	DT	DT	DT	DT	DT	DT	WT	WT



Courtesy of Dr. Wynn Okada, Honolulu, HI  
Both restored with one shade only.

"As an artist, I look for materials that can complement my creativity. Essentials such as handling, the ability to match tooth structure and capture the correct reflective index of light are attributes of a great composite. KALORE definitely meets these standards of excellence."

– Dr. Frank J. Minac, DDS, AACD, St. Paul, MN

# Marketing Collaterals – 36 page Technical Manual



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