

# GRADIA™ DIRECT

## Light-Cured Microfilled Hybrid Resin Composite

**Volume/Weight**  
 Anterior Unitips: 0.16 ml/0.24 g  
 Anterior Syringes: 2.7 ml/4g  
 Posterior Unitips: 0.16 ml/0.28 g  
 Posterior Syringes: 2.7 ml/4.7 g



**Anterior Shades**  
 Standard: A1, A2, A3, A3.5, A4, B2, B3, C3, CV (Cervical), CVD (Cervical Dark), BW (Bleaching White)  
 Inside Special: AO2, AO3, AO4  
 Outside Special: NT (Natural Translucent), CT (Clear Translucent) DT (Dark Translucent), WT (White Translucent), GT (Gray Translucent), CVT (Cervical Translucent).  
**Posterior Shades**  
 Standard: P-A1, PA-2, PA3, PA3.5  
 Outside Special: P-WT, P-NT  
**Notes**  
 Standard = Dentin/Enamel  
 Inside Special = Opaque Dentin  
 Outside Special = Translucent Enamel

**423001 Gradia Direct Complete Kit (Unitip)**  
 Contains: 106 Unitips, 5 tips of each shade (A1, A2, A3.5, CV, AO3, DT, NT, P-A1, P-A2, P-A3, P-A3.5, P-WT, P-NT) and 3 tips of each shade (A4, B2, B3, C3, CVD, AO2, AO4, BW, WT, CT, GT, CVT), Shade Guide, Unitip Applier and Mixing Pad.

**423002 Gradia Direct Complete Kit (Syringe)**  
 Contains: 26 Syringes, one of each shade, Shade Guide and Mixing Pad.

**001966 Gradia Direct Introductory Kit (Unitip)**  
 Contains: 35 Unitips, 5 tips each in 7 shades (Anterior A2, A3, A3.5, AO3, CV, CT and Posterior P-A2) and Shade Guide.

**002039 Gradia Direct Introductory Kit (Syringe)**  
 Contains: 1 Syringe (2.7 ml) of each shade (Anterior A2, A3, A3.5, AO3, CV, CT and Posterior P-A2) and Shade Guide.

**Gradia Direct Untip Refills**  
 Contains: 20 Tips (.16 ml each).

001967	Shade A1	002040	Shade DT
001968	Shade A2	001997	Shade P-A1
001969	Shade A3	001998	Shade P-A2
001970	Shade A3.5	001999	Shade P-A3
001972	Shade CV	002000	Shade P-A3.5
001971	Shade AO3	002041	Shade P-WT
001975	Shade NT	002002	Shade P-NT

**Gradia Direct Untip Refills**  
 Contains: 10 Tips (.16 ml each).

001976	Shade A4	001982	Shade CVD
001977	Shade B2	001983	Shade BW
001978	Shade B3	001984	Shade CT

001979	Shade C3	001985	Shade WT
001980	Shade AO2	001986	Shade GT
001981	Shade AO4	001987	Shade CVT

**Gradia Direct Syringe Refills**  
 Contains: 1 Syringe (2.7 ml each).

001988	Shade A1	002050	Shade BW
001989	Shade A2	002053	Shade DT
001990	Shade A3	002049	Shade CT
001991	Shade A3.5	002052	Shade GT
002042	Shade A4	001996	Shade NT
002043	Shade B2	002051	Shade WT
002044	Shade B3	002054	Shade CVT
002045	Shade C3	002003	Shade P-A1
001993	Shade CV	002004	Shade P-A2
002048	Shade CVD	002005	Shade P-A3
002046	Shade AO2	002006	Shade P-A3.5
001992	Shade AO3	002055	Shade P-WT
002047	Shade AO4	002008	Shade P-NT

**002009 Gradia Direct Shade Guide**  
**423003 Unitip Applier**  
**002234 Mixing Pads 14B, 5 Pads, 1-5/8" x 2-3/8"**

**XXXXXX UNIFIL BOND**  
 Self-Etching Primer and Bonding Agent

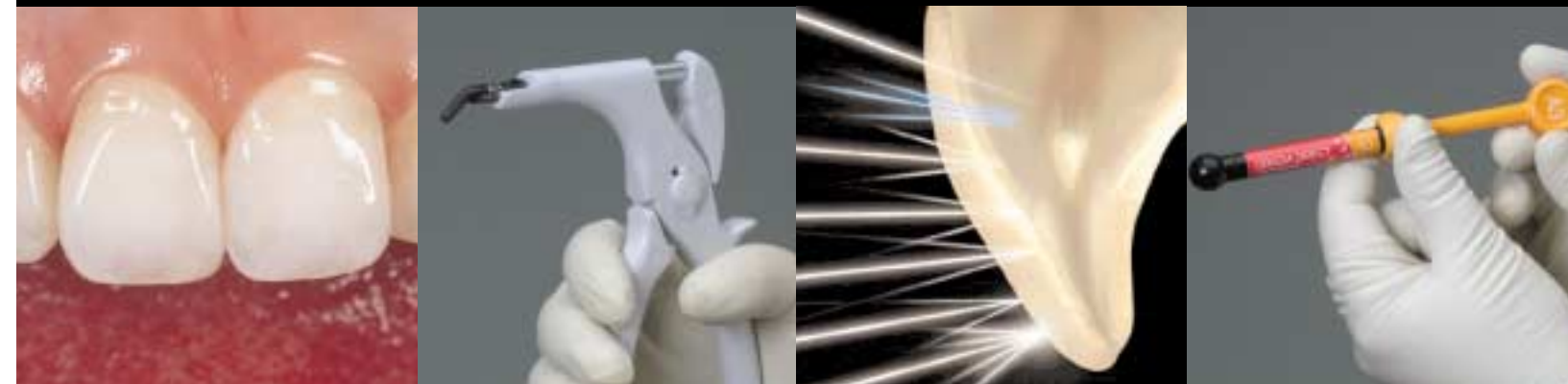


**XXXXXX UNIFIL FLOW**  
 Flowable Composite in Syringe  
 Shade  
 Shade  
 Shade  
 Shade  
 Shade  
 Shade



# GRADIA® DIRECT

## Light-Cured Microfilled Hybrid Resin Composite



**GC America Inc.**

Advancing the Art and Science of Dentistry  
 © 2003 GC America Inc., 3737 West 127th St., Alsip, IL 60803  
<http://www.gcamerica.com>

*High-End Esthetics Made Easy.*

## Esthetic Invisibility - Single Shade Simplicity

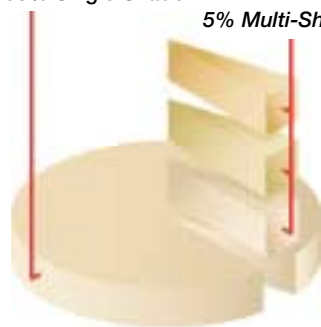
With the best light refractory index, opalescence, fluorescence and translucency available, GRADIA DIRECT makes it easy to complete natural looking, high-end multi-layer restorations with as little as a one shade technique. GRADIA DIRECT not only picks up the color and matches the surrounding tooth, it becomes esthetically "invisible."



Single Shade Simplicity  
Brilliant Esthetics

In fact, in about 95% of restorative cases, GRADIA DIRECT can achieve brilliant esthetics with only one shade.

95% Single Shade  
5% Multi-Shade



DIRECT RESTORATIONS

## Best Handling Composite Ever

One thing every professional notices about GRADIA DIRECT is the superior handling. Anterior shades sculpt readily and posterior shades offer strength and body. GRADIA DIRECT gives you plenty of working time even in strong ambient light. And it's not sticky, so it shapes and sculpts easily. You can even add and take away material with an artist's brush.



GRADIA DIRECT is Easy to Place



Sculpts Readily with a Bladed Instrument



Can be manipulated with a brush



Natural looking - a perfect match

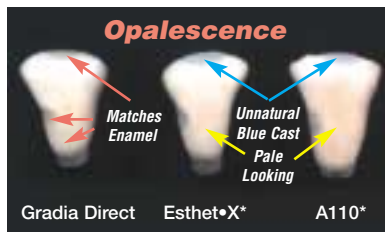
## Optimal Balance of Physical Properties

Light-cured GRADIA DIRECT is a micro-filled hybrid resin composite with microfine pre-polymer resin fillers, a unique coupling agent and urethane dimethacrylate co-monomer matrix which offers significant advantages in esthetics, polishability, wear resistance and fracture toughness.

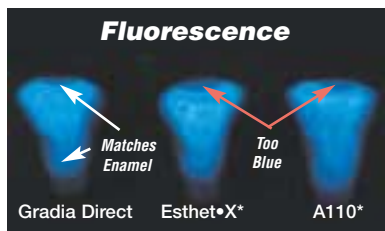
Designed to be the best enamel replacement ever, GRADIA DIRECT has toothlike color reflection and absorption and lifelike optical properties, including brightness, translucency and warmth.



GRADIA DIRECT restorations match the appearance of surrounding tooth with perfect translucency, opalescence and fluorescence.



Opalescence similar to enamel



Fluorescence similar to enamel

## Clean and Simple Shade System

GRADIA DIRECT is a complete restoration system for direct that features 26 shades in choice of Unitip or Composite Syringe delivery.



**Standard Shades**  
(11 anterior; 4 posterior)

For most simple restorations, using just one of the Standard Shades in a single shade technique gives excellent results.

### Special Shades

For more extensive multi-shade techniques, Special shades are placed underneath or on top of a Standard shade.

**Inside Special Shades**  
(3 anterior shades)

These are opaque shades placed underneath a Standard Shade to give warmth to the final color and block out unwanted dark color.

**Outside Special Shades**  
(6 anterior; 2 posterior)

Placed on top of a Standard shade, outside special shades take into account the age-related changes in the enamel - translucency and value - to give a more lifelike appearance.

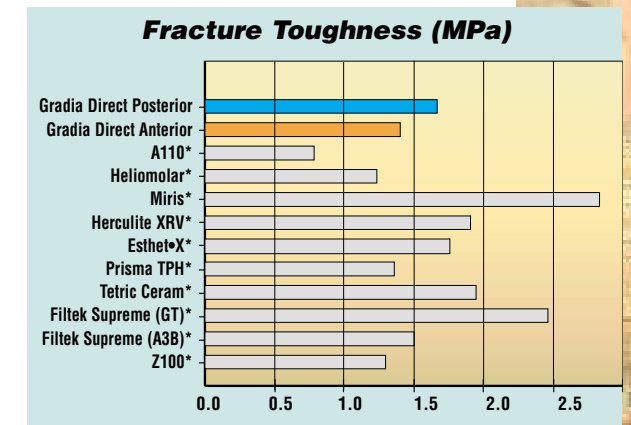
### Direct or Indirect

Just like GRADIA (for INDIRECT laboratory restorations), new GRADIA DIRECT has multifaceted reflective and optical properties similar to that of natural tooth.

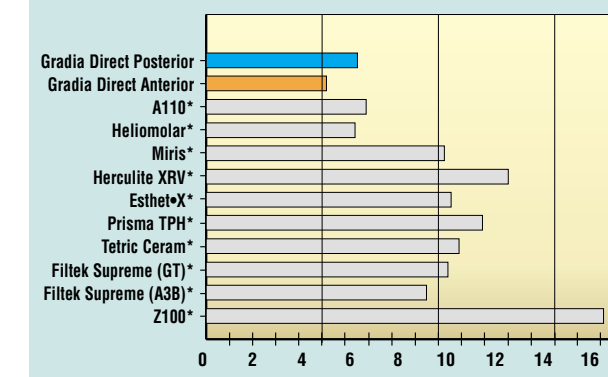
## Great Physical Properties

GRADIA DIRECT's optimal balance of physical properties provides outstanding esthetics without sacrificing strength, durability and longevity.

**Tough and Flexible:**  
GRADIA DIRECT has high fracture toughness and a low modulus of elasticity to resist bending and cracking from occlusal forces.



## Modulus of Elasticity (GPa)



**Light Curable:**  
GRADIA DIRECT is a light-cured composite restorative that can be cured using a quartz halogen curing light, a plasma arc curing light or LED (Light Emitting Diode) Light.

### High Wear Resistance:

Essential for posterior restorations, GRADIA DIRECT is very durable, exceptionally resistant to occlusal wear, yet kind to opposing dentition.

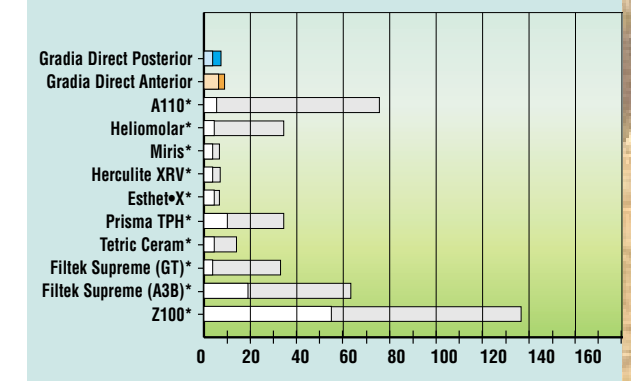
### Color Stable:

GRADIA DIRECT is very color stable before and after light-curing.

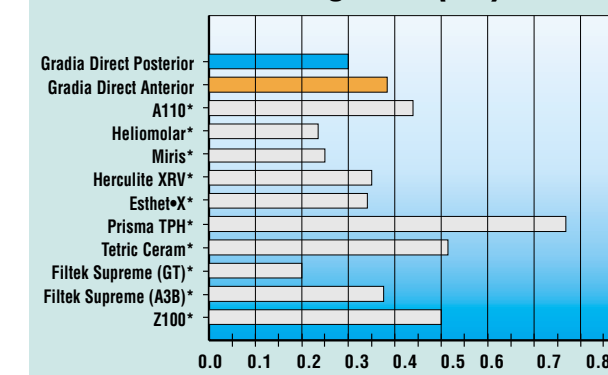
### Radiopacity:

The posterior shades are radiopaque.

## Material Wear & Tooth Wear (um)



## Surface Roughness (um)



**Superior Finish:**  
GRADIA DIRECT can be highly polished with minimal effort.

Ask your dental dealer about GRADIA DIRECT and its special introductory offer today!

**GRADIA® DIRECT**  
High-End Esthetics Made Easy.



## Reflections Determine Color Perception

The way a natural tooth reflects light determines its perceived color. When all wavelengths are reflected, it is called a *Mirror Reflection* - this occurs on the outside surface of a highly polished tooth accounting for its glossy appearance.

Reflections from inside the tooth are derived from its diverse structural makeup: enamel crystals, dentinal tubules, peritubular dentin and the dentin-enamel junction. Certain wavelengths of light *reflect* off the tooth while some of the light is *absorbed*. This optical property is called *Diffuse Reflection* and is the reason the tooth's hue (pure color), chroma (color saturation), value (lightness or darkness of the color), translucency (color depth) and opalescence ( ) can be seen. The tooth's fluorescent appearance comes from *emitted* light.

## Particle Structure Mimics Reflectivity of Natural Tooth

One of main reasons GRADIA DIRECT blends in and picks up the color of the surrounding teeth is because it has been designed to mimic the reflectivity of natural tooth structure.

Like tooth structure, GRADIA DIRECT is made up of diverse, multifaceted structures - a variety of particles consisting of a micro-

Micrographs courtesy of M. A. Leriche.



Enamel Crystals



Dentinal Tubules and Peritubular Dentin



Dentin-Enamel Junction

filled matrix of resin composite, with compounds mainly of silica, pre-polymerised fillers and urethane dimethacrylate co-monomer matrix.

The amount of each element and its particle size distribution has been carefully chosen so that when added together, many different interfaces occur with different reflective properties. The result is internal reflectivity and optical properties which replicate that of natural teeth.



## Natural Reflectivity Means Natural Esthetics

This toothlike reflectivity makes GRADIA DIRECT restorations appear natural, with true to life color and full vitality. Overall, GRADIA DIRECT restorations are esthetically "invisible" when compared to other restoratives. This means single shade simplicity for most restorations and easy to complete, natural looking high end multilayer restorations for more intricate cases.



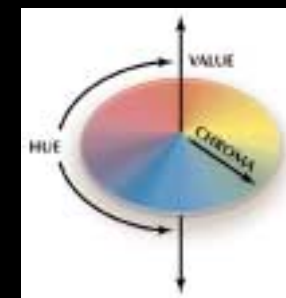
Ordinary restoratives have a simpler particle structure (x 10,000)



GC GRADIA DIRECT has a diverse particle structure (x 10,000)

# GRADIA® DIRECT

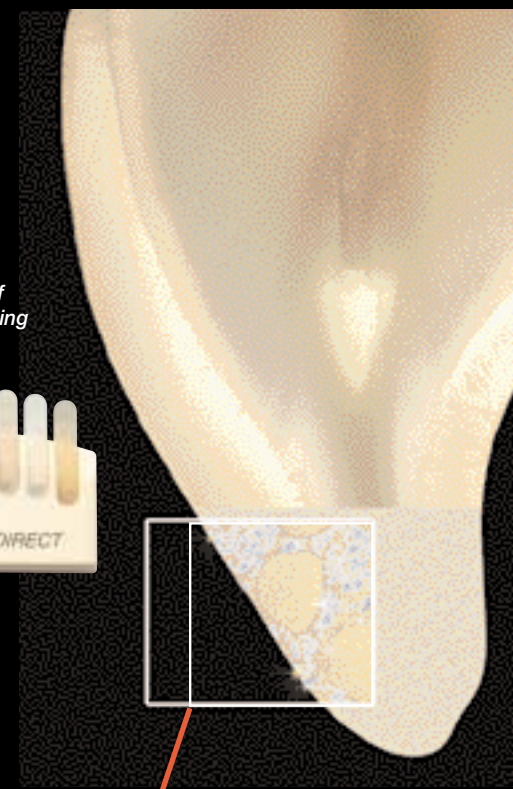
## High-End Esthetics Made Easy.



HUE = Pure Color (itself)  
CHROMA = Saturation of Color  
VALUE = The Lightness or Darkness of the color

### Shade Guide

GRADIA DIRECT has a simple to use Shade Guide (based on the VITAPAN® Classical Shades) that has unique 4-step tabs to help you judge the influence of material thickness on a particular shade. By positioning one shade thickness over another, it is possible to gauge the effect of shade layering.



Internal structure of restoration with GC GRADIA DIRECT



GRADIA DIRECT has a similar multifaceted structure to that of NATURAL TOOTH. The reflectivity and optical properties are therefore very similar, making the final restoration esthetically "invisible"

# GRADIA® DIRECT

High-End Esthetics Made Easy.



**Diastema Closure**

Shade Guide used to determine base color A-2 and translucent surface enamel slightly lighter.



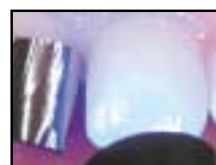
Apply UniFil BOND Self-Etching Primer to bonding surfaces. Protect enamel of adjacent central tooth with matrix strip.



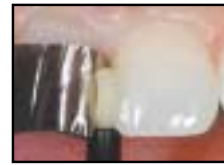
After 20 seconds, gently dry with syringe air.



Apply UniFil BOND Bonding Agent to the primed enamel and dentin surfaces.



Light-cure for 20 seconds using a standard VLC Curing light.



Place GRADIA DIRECT to prepared bonding area.



Sculpt GRADIA DIRECT Composite with a thin bladed instrument.



Light-cure for 20 seconds.



Place a layer of White translucent Shade WT as needed.



Sculpt with a thin metal instrument and a sable artist's brush.



Light-cure.



Finish with a 12 or 30-bladed finishing bur.



Trim and finish interproximally with a series of EPITEX Trimming and Finishing Strips.



Bring the surface to a high surface lustre using a polishing disc and a fine polishing brush.



One week after: Left and right central incisors bonded with GRADIA DIRECT to close the space.

Dr. R. Naesh



**Class I Sandwich**

Prepare cavity in the usual manner.



Apply UniFil BOND Self-Etching Primer to bonding surfaces. Protect enamel of adjacent central tooth with matrix strip.



Dispense Fuji Lining LC Paste Pak onto a mixing pad.



Mix the lining material.



If desired, insert material into an applicating syringe.



Line cavity floor and walls with GC Lining LC.



Light-cure for 20 seconds using a standard VLC Curing light.



Apply UniFil BOND Self-Etching Primer to bonding surfaces. After 20 seconds, gently dry with syringe air.



Apply UniFil BOND Bonding Agent to the primed enamel and dentin surfaces.



Light-cure for 20 seconds.



Place GRADIA DIRECT to prepared bonding area. Sculpt with a thin bladed instrument.



Light-cure for 20 seconds.



Clean, trim and finish as necessary.



**Class II Tunnel**

Prepare cavity as required.



Completed restoraton.

Dr. L. Herwig



**Incisal Wear**

Need copy for this pic



Geriatric restoration completed with one shade.



**Class III Cavity**

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Bring the surface to a high surface lustre using a polishing disc and a fine polishing brush.



**Class III Cavity**

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Dr. Yamada



**Class I & II**

Prepare cavity as needed.



Completed posterior restoration with only one shade.



**Class III Cavity**

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Bring the surface to a high surface lustre using a polishing disc and a fine polishing brush.

Dr. Yamada

Dr. Yamada



Light-cure.



**Class III Cavity**

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Trim and finish interproximally with a series of EPITEX Trimming and Finishing Strips.



**Class III Cavity**

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One week after: Left and right central incisors bonded with GRADIA DIRECT to close the space.



**Central Veneers**

Prepare centrals as necessary.



Veneers completed with GRADIA DIRECT.

Dr. R. Chilbeck

**GRADIA DIRECT Introductory Kits**

- Unitips: 5 each of A2, A3, A3.5, A03, CV, CT, P-A2 and Shade Guide.
- Syringes: 7 syringes of A2, A3, A3.5, A03, CV, CT and P-A2 and a Shade Guide.
- Complete Kits with all 26 Shades also available.

