



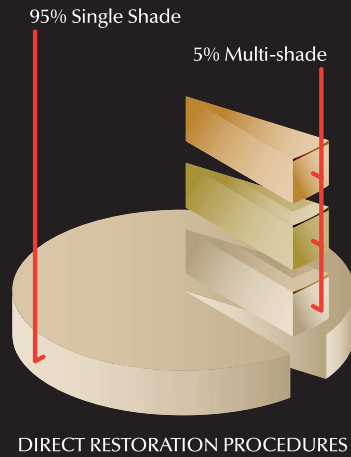
# GC GRADIA DIRECT

Light - Cured Composite Restorative

One-shade simplicity  
and aesthetic invisibility



**GC**  
FIRST IS QUALITY



Around 95% of direct restoration procedures use only one shade of restorative, mainly as it's faster and easier, so minimising chair-side time. The move towards minimum intervention dentistry also means that more of these procedures are being carried out as often this is the best way of preserving tooth structure. Unfortunately, with a single shade current products tend to give a rather poor aesthetic match to surrounding tooth

structure. A better match can be achieved by adding further shades, but this is rarely employed as the whole procedure becomes far more complex and time-consuming. Current products therefore, do not suit today's way of working. A compromise often has to be made between aesthetics and simplicity.

Now, you can achieve brilliant aesthetics with one shade, by using GRADIA DIRECT from GC.

# GC GRADIA DIRECT

Light - Cured Composite Restorative



GC Gradia Direct has been rated excellent with 5 scores out of 5 by The Dental Advisor (vol.21 -2004).

The excellent aesthetics achievable with GC Gradia Direct, its ability to blend with surrounding tooth structure, outstanding handling properties without stickiness and the simplicity of the shade system, were all high-lighted by the journal's Editor.



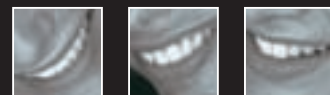
The Reality Product Guide has also awarded GC Gradia Direct 4 stars noting in particular its easy handling properties.



One shade of GC GRADIA DIRECT gives brilliant aesthetic 'invisibility'

Developed as part of GC's commitment to minimum intervention dentistry and based on GC GRADIA, our laboratory system for making high-end aesthetic crown and bridge work, GC GRADIA DIRECT is a composite with a unique particle structure and a clever yet simple shade system. Available in Anterior and Posterior versions GC GRADIA DIRECT sets a new standard for aesthetic 'invisibility' and ease of use, giving a superb, natural-looking restoration with only one shade and if further aesthetic enrichment is required, extra shades can be added very simply.

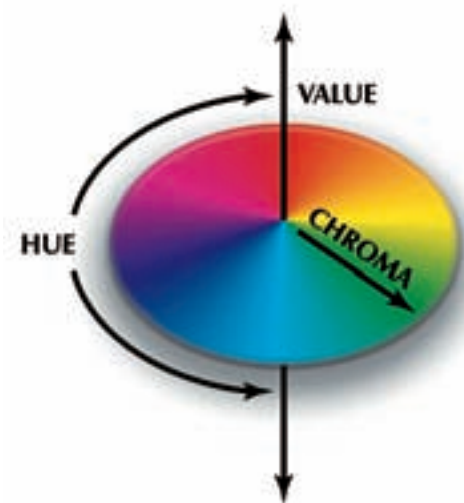
one-shade  
simplicity  
and aesthetic  
'invisibility'  
without  
compromise



## One shade with an ordinary product often gives a poor chameleon effect

The ability of a restoration to match the appearance of surrounding tooth is called the chameleon effect. The better the effect, the less visible the restoration. To enable close matching to the natural tooth, direct restoratives come in a range of shades, each delicately balancing the three-dimensional components of colour, namely:

- *hue* - the pure colour itself
- *chroma* - the saturation of the colour
- *value* - the lightness or darkness of the colour



The better the chameleon effect, the better the match to surrounding tooth

The nature of tooth structure also brings into play other optical properties which influence their appearance, so the restorative material has to try and mimic these properties too:

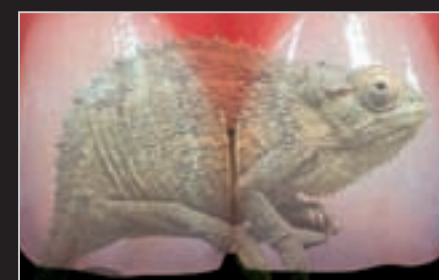
- *translucency* - parts of the tooth structure are translucent so some light passes through, whilst other parts are opaque so no light goes through
- *opalescence* - some structures within a tooth such as the enamel layer, produce shimmering pale colours
- *fluorescence* - is the ability of teeth to absorb UV wavelengths and emit visible, mostly bluish light

However, experience with the current ordinary restoratives shows that when one shade is used the chameleon effect produced is often not that good. To achieve a better effect and so more acceptable aesthetics, further shades need to be added.



## One shade of GC GRADIA DIRECT gives more than a good chameleon effect - it's an *invizi-fx*

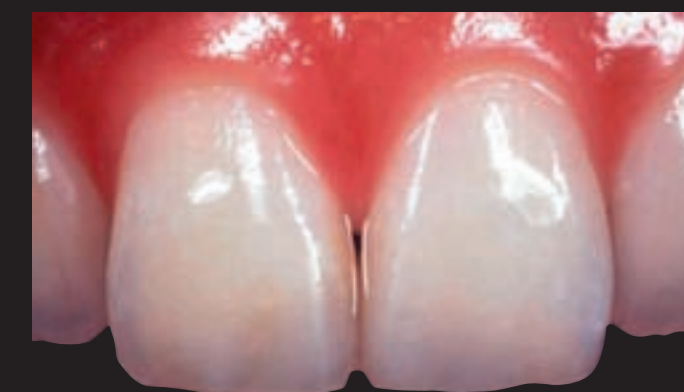
The chameleon effect achievable with one shade of GC GRADIA DIRECT is so good that the restoration does more than just 'match' the surrounding natural tooth - it becomes aesthetically 'invisible'. In fact, we call it the *invizi-fx*. One of the main reasons why GC GRADIA DIRECT can do this is because it has a more diverse structural composition than other direct restoratives, which better reproduces the reflectivity of a natural tooth.



GC GRADIA DIRECT gives more than a good chameleon effect - it's an *invizi-fx*

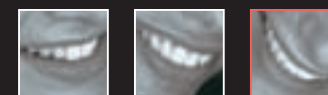


BEFORE RESTORATION



AFTER RESTORATION

GC GRADIA DIRECT is more aesthetically 'invisible' as it more accurately copies the reflectivity of a natural tooth



## Reflection determines colour perception

The way a natural tooth reflects light determines its perceived colour. When all wavelengths are reflected, which occurs on the outside of a highly polished tooth, it is called mirror reflection. This produces the tooth's glossy appearance.

The process of reflection from inside a natural tooth is determined by its diverse multifaceted structures, such as the enamel crystals, dentinal tubules, the peritubular dentin and the dentine/enamel junction, all of which together create a complex series of reflective interfaces.

However, only certain wavelengths are reflected as some of the light is absorbed. This type of reflection is

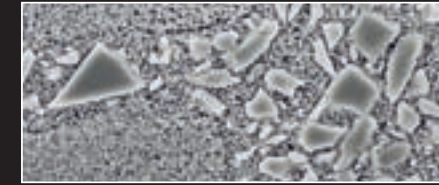
called diffuse reflection and it is responsible for how the tooth's hue, chroma and value are actually perceived as well as its translucency and opalescence. The tooth's fluorescent appearance comes from emitted light.

## Particle structure mimics reflectivity of natural tooth

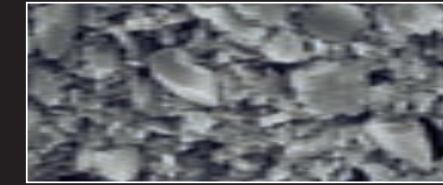
The reason why a GC GRADIA DIRECT restoration produces such a good invizi-fx is that, like tooth structure, it too is made up of diverse multifaceted structures - a variety of particles consisting of a micro-filled matrix of resin composite, with compounds mainly of silica and pre-polymerised fillers.

The amount of each constituent 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 an internal reflectivity which more accurately reproduces that of natural tooth.

## Natural reflectivity means natural aesthetics



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

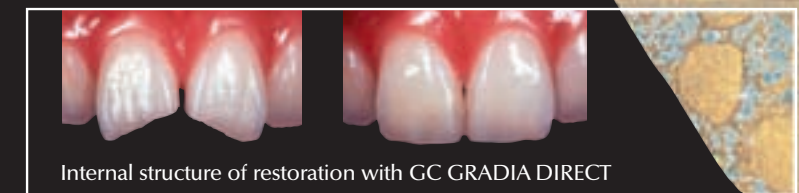


Ordinary restoratives have a simpler particle structure (x 10,000)

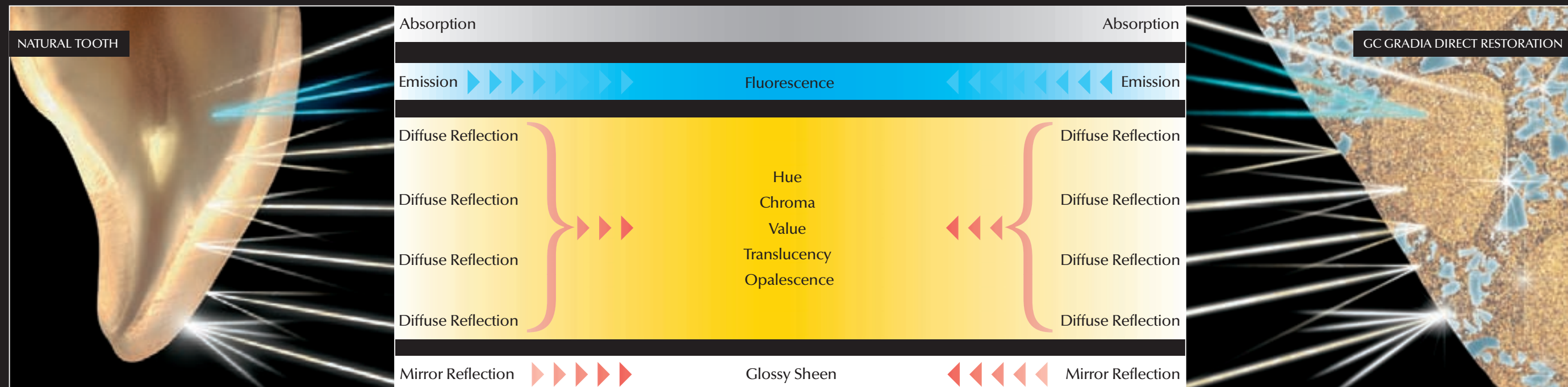
The tooth-like reflectivity of GC GRADIA DIRECT means that its hue, chroma, value, translucency, opalescence and fluorescence is perceived as far more natural and life-like.

The overall effect, or invizi-fx, is that a GC GRADIA DIRECT restoration is more aesthetically 'invisible' with a single shade and gives outstanding high-end aesthetics when further shades are used.

In contrast, current direct restoratives do not have such a diversity of multifaceted particles and so just one shade has a more limited reflectivity and poorer aesthetics. The only way further multi-reflections can be created to improve appearance is to add more layers.



Internal structure of restoration with GC GRADIA DIRECT



GC GRADIA DIRECT has a similar diverse multifaceted structure to that of NATURAL TOOTH. Their reflectivity and so optical properties are therefore very similar, making the restoration aesthetically 'invisible' - the invizi-fx.



## Unique Shade System for even greater simplicity

To contribute effectively to the overall 'invisibility' of a restoration, the invizi-fx must work in combination with the correct shade or shades of GC GRADIA DIRECT. To help choose the right hue, chroma, value and translucency, there is a clever yet remarkably simple Shade System with Shade Guide designed for both the single-shade and multi-shade techniques.



### Standard Shades

For the single-shade technique, using just one of the Standard Shades gives an excellent result. Available in both the Anterior and Posterior versions, each is a delicate balance between hue, chroma, value and translucency. The Anterior version has A, B and C shade groups which are based on the VITAPAN Classical® Shade Guide, as well as CV (Cervical), BW (Bleach White) and XBW (Extra Bleach White). The Posterior version has A shades only.



Example of anterior restoration



Example of posterior restoration

### Special Shades

Although GC GRADIA DIRECT gives excellent aesthetics for the 95% of procedures that use just a single shade, there may be times when the multi-shade technique is preferred such as when extensive restoration is required. There are two types of additional shades to choose from, called Special Shades which are placed underneath or on top of a Standard Shade.

#### Inside Special Shades

These are opaque shades which are placed underneath a Standard Shade to give warmth to the final colour and block out 'dark shine' through the mouth. Available only in the Anterior version there are three Inside Special Shades: AO2, AO3 and AO4.



Example of anterior restoration



Example of posterior restoration

### Outside Special Shades

Placed on top of a Standard Shade these shades take account of age-related changes in the enamel which affect its translucency and value. This gives a more lifelike appearance.

As the enamel width goes from thick to thin with age its value reduces. For a child the WT shade (White Translucent) gives the most

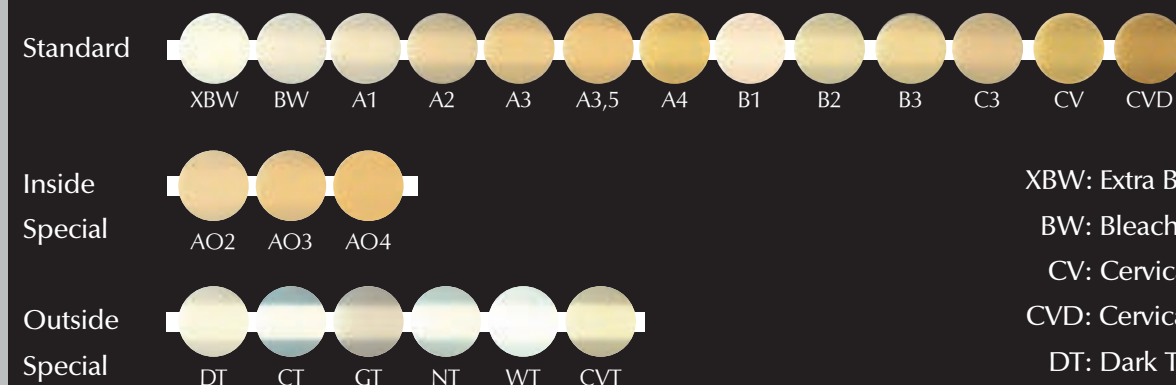
white, and the DT shade (Dark Translucent) is for darker adult teeth. For the elderly there is the GT shade (Grey Translucent) which gives the most black value and the CVT shade (Cervical Translucent) is for the cervical area.

When the enamel gets thinner the tooth's translucency increases. This is particularly noticeable at the

incisal edges. To better match the present translucency the CT shade (Clear Translucent) can be used and/or the NT shade (Natural Translucent).

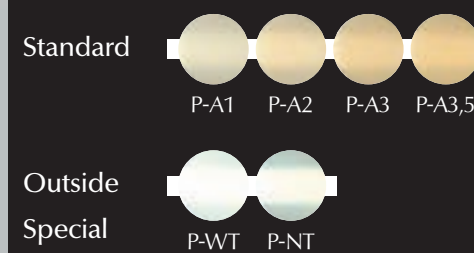
All Outside Special Shades are available in the Anterior version and for the Posterior version there are the WT and NT shades.

## Anterior 22 shades



XBW: Extra Bleach White  
 BW: Bleach White  
 CV: Cervical  
 CVD: Cervical Dark  
 DT: Dark Translucent  
 CT: Clear Translucent  
 GT: Grey Translucent  
 NT: Natural Translucent  
 WT: White Translucent  
 CVT: Cervical Translucent

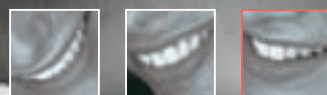
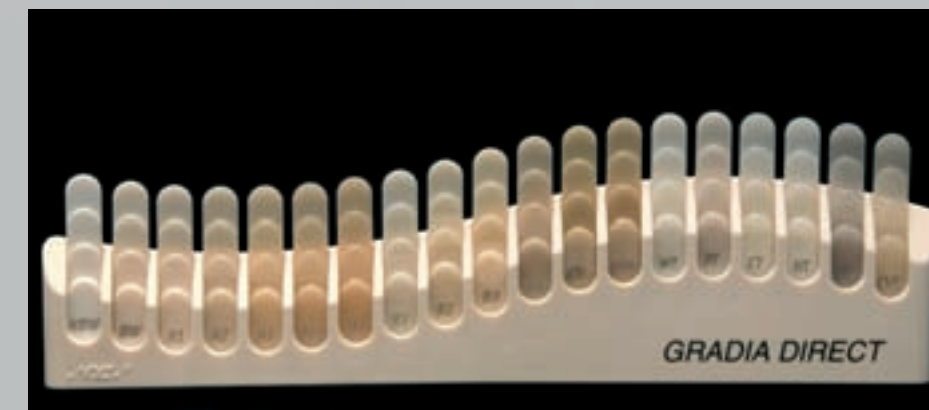
## Posterior 6 shades



Standard and Inside Special shades are based on the Vita® Shade Guide.

### Shade Guide

Most shades are linked to the VITAPAN Classical® Shade Guide but some are unique, so to aid selection there is a simple to use Shade Guide. This has wedge shaped 'fingers' of increasing thickness to help dentists judge the influence of material thickness on a particular shade.



All the properties required for superb, long-lasting restorations

#### Good polishability

For improved aesthetics, GC GRADIA DIRECT polishes quickly and easily to a smooth, glossy surface.

#### Tough and flexible

To resist bending and occlusal forces as well as the spread of cracks, GC GRADIA DIRECT has high fracture toughness and a low modulus of elasticity.

#### High wear resistance

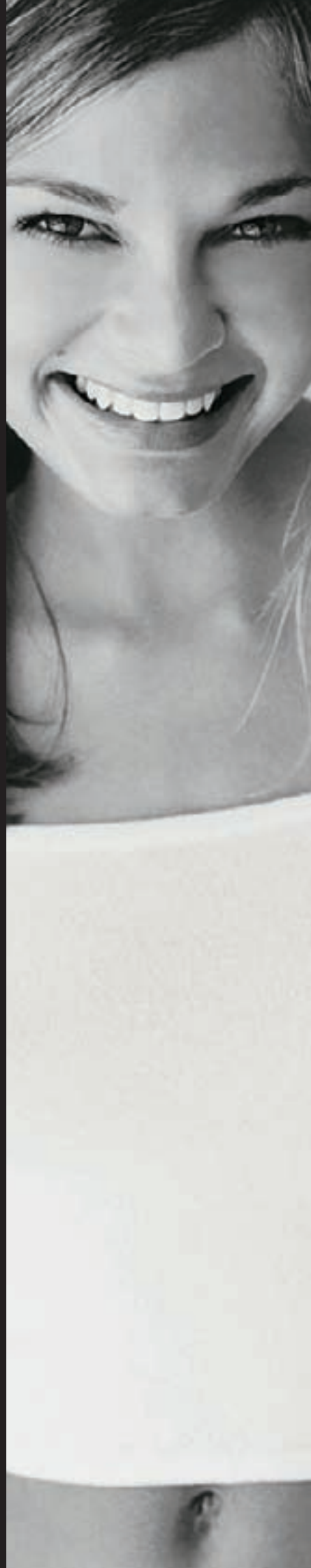
Essential for posterior restorations, GC GRADIA DIRECT is very durable, resisting occlusal wear exceptionally well yet has low wear on opposing dentition.

#### Light curable

GC GRADIA DIRECT can be light cured using a quartz halogen, plasma arc or LED light. There is minimum colour change before and after light curing.

#### Radiopaque

The posterior version of GC GRADIA DIRECT is radiopaque.



## GC GRADIA DIRECT

### A complete system for direct restorations

#### GC GRADIA DIRECT Anterior

Class III, IV and V cavities  
Wedge-shaped defects and root surface cavities  
Veneers and diastema closure

#### GC GRADIA DIRECT Posterior

Class I and II cavities  
When radiopacity is required

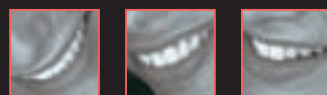
#### GC G-Bond

A single component bonding system which bonds GC GRADIA DIRECT to tooth structure in one coat, for a fast and easy application. The unique combination of phosphoric ester monomer and 4-MET adhesive technology gives superior etch and adhesion to enamel, in addition to an excellent chemical and mechanical seal to dentin.

#### GC Gradia Direct Flo

Specially designed for lining cavities beneath GC GRADIA DIRECT, GC Gradia Direct Flo is a micro-filled hybrid resin which is radiopaque and light-curable. It has an easy to use free-flowing, no-run/no-stick formula that shapes perfectly to cavity walls.

*To view in detail the remarkable capabilities of GC GRADIA DIRECT, a Clinical Manual is available on request, which shows a range of actual case studies.*



## Packaging

### GC GRADIA DIRECT



#### SHADES ANTERIOR:

**Standard:** A1, A2, A3, A3.5, A4, B1, B2, B3, C3, CV, CVD, BW, XBW

**Inside Special:** AO2, AO3, AO4

**Outside Special:** NT, CT, DT, WT, GT, CVT

#### SHADES POSTERIOR:

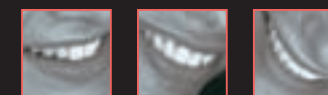
**Standard:** P-A1, P-A2, P-A3, P-A3.5

**Outside Special:** P-WT, P-NT

### GC G-Bond



### GC Gradia Direct Flo



#### PACKAGES

##### UNITIPS

**Complete kit:** All available Standard, Inside Special and Outside Special shades, except for B1 and XBW, and a shade guide

**Introductory kit:** 5 Unitips each of A2, A3, A3.5, AO3, CV, CT and P-A2, and a Shade Guide

**Refill:** 20 Unitips of: A1, A2, A3, A3.5, AO3, CV, DT, NT, P-A1, P-A2, P-A3, P-A3.5, P-WT, P-NT

10 Unitips of: A4, B1, B2, B3, C3, AO2, AO4, CVD, BW, XBW, CT, WT, GT, CVT

##### Note:

Content per unitip: 0.16ml (0.24g) for anterior and 0.16ml (0.28g) for posterior.

Content per syringe: 2.7ml (4g) for anterior and 2.7ml (4.7g) for posterior.

#### PACKAGES

##### Starter Kit Bottle:

5 ml bottle, 50 micro-tip applicators, 1 micro-tip applicator, 1 dispenser tray

##### Starter Kit Unit Doses:

50 x 0.1 ml unit doses, 50 green disposable applicators

#### PACKAGES

**Refill:** 2 x 1.5 g / 0.8 ml syringes, 4 dispensing tips needle type and 2 light protective covers

**Shade:** A3

##### Accessories:

Gradia Direct Flo Dispensing Tips, Needle Type, 20 pcs

Gradia Direct Flo Dispensing Tips, Plastic Type, 20 pcs

##### Accessories:

Unitip Applicator, Shade Guide

##### SYRINGES

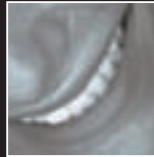
**Complete kit:** 26 syringes of all available Standard, Inside Special and Outside Special shades, except for B1 and XBW, and a shade guide

**Introductory kit:** 7 Syringes of: A2, A3, A3.5, AO3, CV, CT, P-A2 and a Shade Guide

**Refill:** 1 Syringe of the available colours

The VITAPAN Classical® Shade Guide and Vita® are registered trademarks of Vita Zahnfabrik, Bad Säckingen, Germany.





GC EUROPE N.V.  
Head Office  
Interleuvenlaan 13  
B - 3001 Leuven  
Tel. +32.16.39.80.50  
Fax. +32.16.40.02.14  
E-mail [info@gceurope.com](mailto:info@gceurope.com)  
[www.gceurope.com](http://www.gceurope.com)

GC UNITED KINGDOM Ltd.  
22-23, Coopers Court  
Newport Pagnell  
UK - Bucks. MK16 8JS  
Tel. +44.1908.218.999  
Fax. +44.1908.218.900  
E-mail [info@uk.gceurope.com](mailto:info@uk.gceurope.com)  
[www.uk.gceurope.com](http://www.uk.gceurope.com)

**GC**  
FIRST IS QUALITY