



# G-COAT PLUS



BEAUTY + BRAWN

GET THE BEST OF BOTH WORLDS  
WITH THE STROKE OF A BRUSH

*'GC'*

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Introducing a  
**Revolutionary**  
new **Coating**

G-COAT PLUS gives  
your restorations the  
Best of Both Worlds:

- A beautiful new finish
- Significantly added strength

A liquid glaze for  
improved aesthetics ...



BEAUTY

# Best of Both Worlds



**G-COAT PLUS** is a nano-filled self adhesive light cured protective coating for lamination strengthening and aesthetic enhancement of glass ionomer cement, composite resin and temporary restorations.

**G-COAT PLUS** is the final lamination that strengthens, protects and enhances all your glass ionomer restorations.

**G-COAT PLUS** is the liquid glaze that gives composite restorations a beautiful gloss surface with enhanced wear resistance and extra protection for margins.

**G-COAT PLUS** is the fastest way to finish your temporary restorations.

**G-COAT PLUS** is the finishing stroke for all your aesthetic restorations.

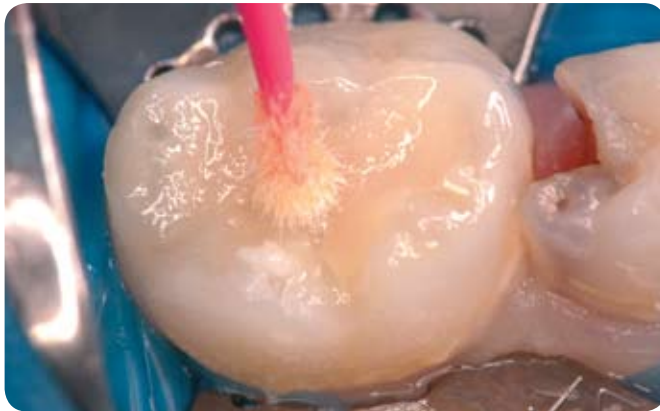


... and increased strength,  
toughness and protection

B R A W N

# Beauty and brawn with the stroke of a brush

## Glass ionomer restorations



Dr. J. Lucas

One quick application of **G-COAT PLUS** will reinforce and strengthen your glass ionomer restorations. The tough self adhesive coating bonds to glass ionomer and surrounding tooth surfaces, providing a lamination effect that markedly increases the fracture toughness, wear resistance and acid resistance of glass ionomer restorations. A protective coating of **G-COAT PLUS** allows complete maturation of the glass ionomer reaction and with delayed saliva exposure creates the strongest possible glass ionomer restorations. With the same simple application **G-COAT PLUS** leaves a beautiful smooth surface and un-matched exterior gloss.

## Composite restorations



Dr. J. Sugisaki

One quick application of **G-COAT PLUS** will immediately transform a newly contoured composite into a high gloss finished restoration. The tough self adhesive coating improves composite wear resistance and polish retention and because **G-COAT PLUS** bonds to composite restorations as well as surrounding tooth surfaces, it will provide additional protection to composite – tooth margins.

## Temporary crowns



Dr G. Willicich

The fastest way to finish your bis-acryl composite or acrylic temporary crowns is to simply apply **G-COAT PLUS** and light cure – that's it! **G-COAT PLUS** gives a beautiful gloss finish that is smooth and stain resistant.

## Existing restorations



Dr J. Sugisaki

**G-COAT PLUS** adheres to existing restorations and can be used as a simple, easy to apply maintenance coating for demanding situations where extra wear resistance, acid resistance or polish maintenance is desired. **G-COAT PLUS** can be used to re-surface existing restorations that require servicing, eg following re-contouring to remove marginal discoloration around old composite restorations.

# Introducing exciting new technologies in G-COAT PLUS

## Fast, simple application

**G-COAT PLUS** introduces exciting new technologies in adhesion and dispersion hardening that mean you have a coating that is quick and simple to apply with results that are visually and structurally impressive. **G-COAT PLUS** is quite different to any previous coatings that were applied to composite or glass ionomer and is the first to offer both the visual and the toughening benefits derived from surface lamination.

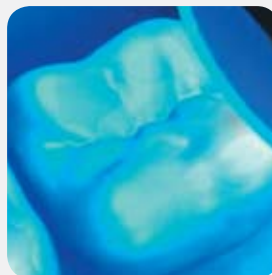
## So easy to use



1. Prepare the surfaces to be coated



2. Immediately apply (within 60") a single uniform layer using a micro tip applicator



3. Light cure for 20 seconds

### NOTE | Prior to application

- new restorations should appear dry and any finishing dust removed
- existing restorations should be roughened with a super-fine diamond
- un-cut enamel should be phosphoric acid etched

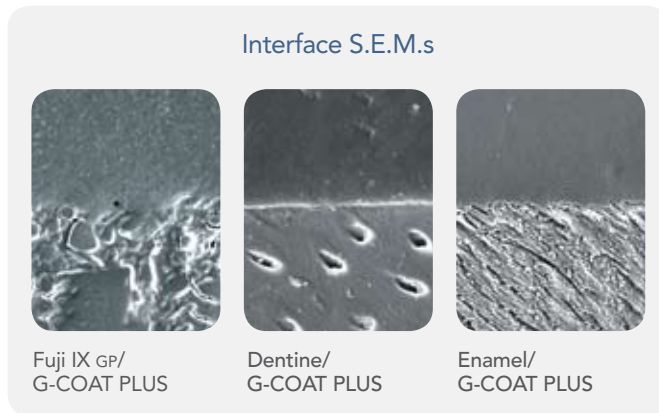
### NOTE | During application

- dispense **G-COAT PLUS** into a deep mixing well
- apply and light cure within 60 seconds of dispensing
- do not air dry
- apply one coat only

**G-COAT PLUS** is the finishing stroke for all your aesthetic restorations

# G-COAT PLUS is the first self adhesive coating for glass ionomer and composite

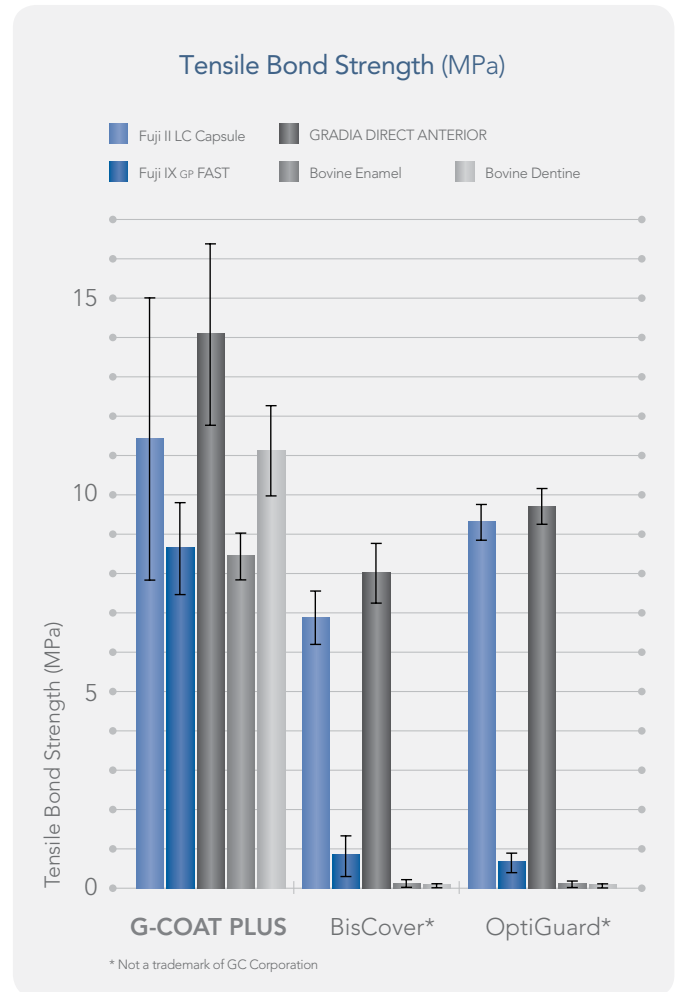
Inclusion of adhesive monomers means **G-COAT PLUS** gives no compromise adhesion to the surfaces it coats ensuring the full benefits of lamination and highest level of protection for restoration-tooth margins.



## Optimised resin formulation

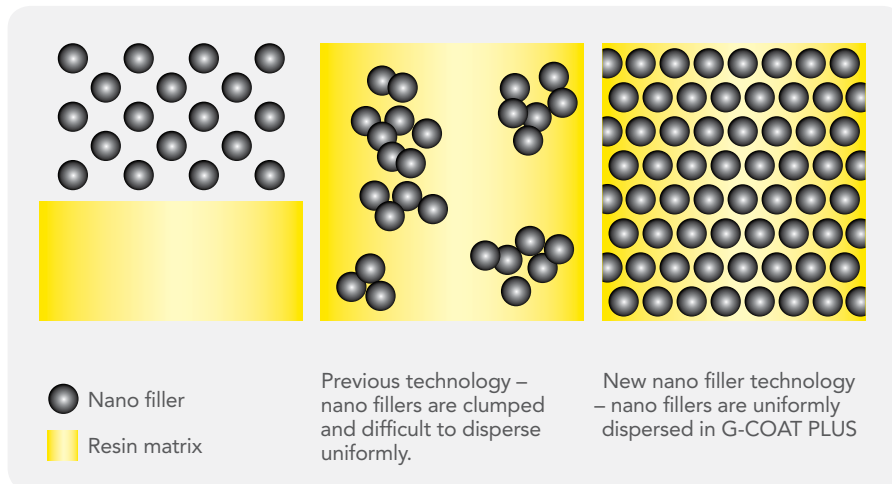
The optimum combination of monomers means **G-COAT PLUS** is strong, tough and able to achieve a high degree of polymerisation with **no air inhibited layer** once light cured.

**G-COAT PLUS** is designed for optimum wetting, strong adhesion, and excellent colour stability and stain resistance.



# G-COAT PLUS is the first single dispersion nano-filled laminate for glass ionomer and composite

**G-COAT PLUS** is the first dental resin material to incorporate single dispersion nano-filler technology. Nano fillers have previously been utilised as clumped fillers, however new manufacturing technology allows a uniform dispersion of nano sized fillers to enhance the wear resistance and toughness of **G-COAT PLUS**.



## Laboratory testing of wear resistance



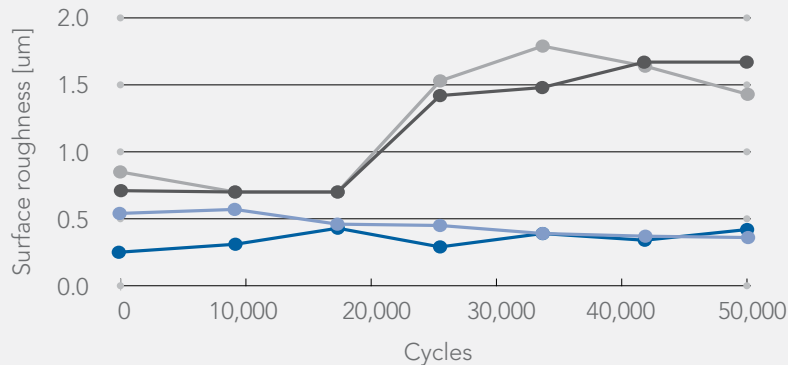
Exceptional wear resistance is demonstrated as part of laboratory testing of Fuji IX GP EXTRA laminated with G-COAT PLUS where after 20,000 cycles the wear resistance of G-COAT PLUS is similar to the ceramic block.

*Tests performed by J. De Munck, Leuven BIOMAT Research Cluster, Catholic University of Leuven, Belgium.*



# G-COAT PLUS gives superior wear resistance and gloss retention

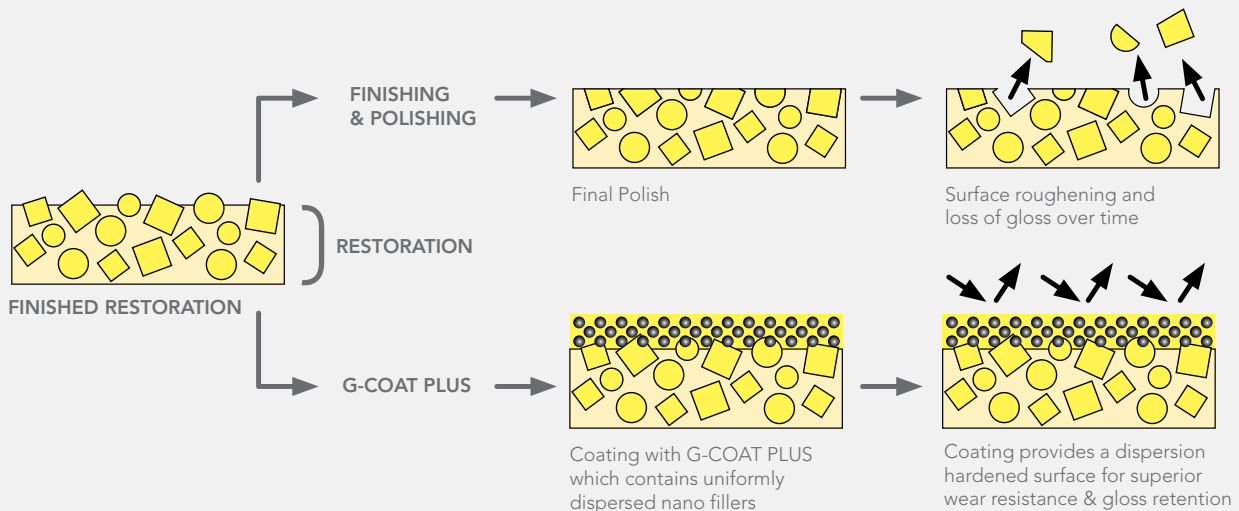
## Toothbrush wear



- **G-COAT PLUS**
- Gradia Direct Anterior
- Fuji II LC Capsule
- Fuji IX GP Capsule

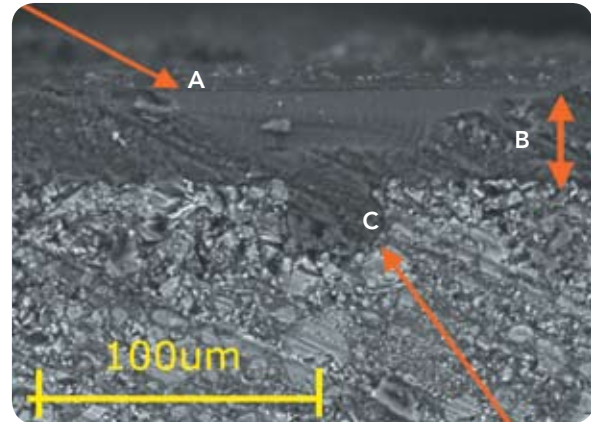
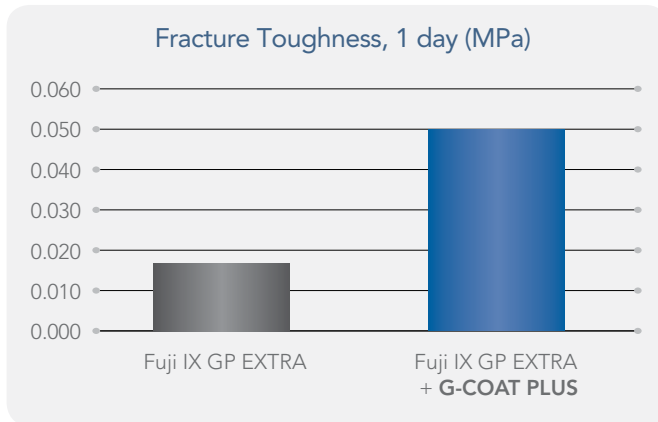
Smoother surfaces are achieved and maintained after application of G-COAT PLUS.

R&D Dept. GC Corporation.

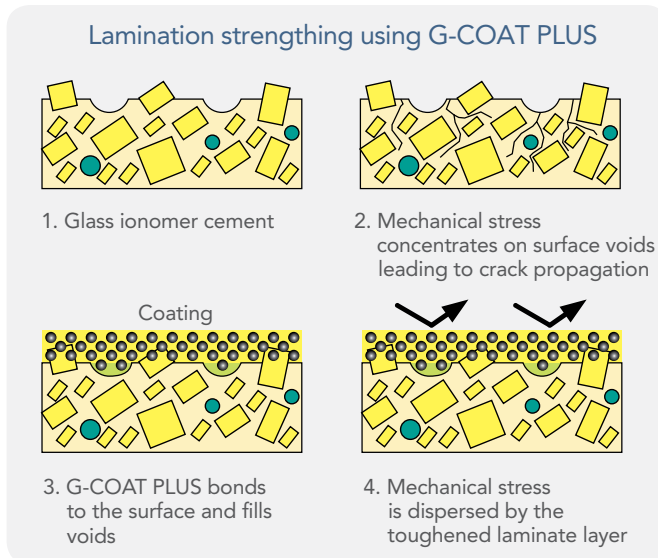


# G-COAT PLUS strengthens and toughens glass ionomer restorations

R&D Dept. GC Corporation.



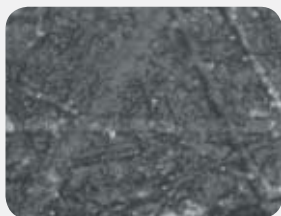
A – G-COAT PLUS  
B – 40 micron film thickness  
C – Infiltration of G-COAT PLUS



Infiltration of **G-COAT PLUS** gives internal protection against cracks and voids for increased fracture toughness. Dispersion of nano-fillers in **G-COAT PLUS** reinforces the outer layer for increased wear resistance and protection against acid erosion.

# G-COAT PLUS won't delaminate

## Existing technology



1. Polished composite



2. After application of Biscover



3. Wear leads to partial delamination with previous technology coatings

## New technology



1. Polished composite



2. After application of G-COAT PLUS



3. With G-COAT PLUS wear over time is uniform without delamination

The strong adhesion of G-COAT PLUS to different restorative materials means that wear loss over time is even and controlled. This signifies an important development over previous coating technologies where initial wear lead to de-lamination. The following visual images show the wear process over time of G-COAT PLUS compared to Biscover.

# Your glass ionomer restorations just got better

## Fuji IX GP Extra and G-COAT PLUS



1. Occlusal caries



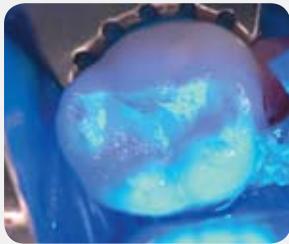
2. Apply conditioner



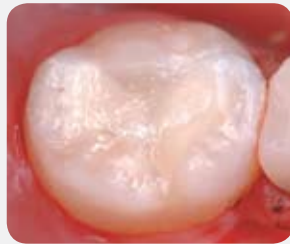
3. Fuji IX GP Extra



4. Apply G-COAT PLUS



5. Light cure for 20 seconds



6. Finished restoration

Dr. J. Lucas

## Fuji IX GP Extra and G-COAT PLUS



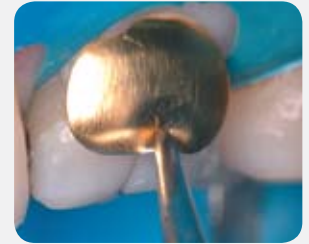
1. Cervical lesion



2. Apply conditioner



3. Inject Fuji IX GP EXTRA



4. Place cervical matrix



5. Apply G-COAT PLUS



6. Finished restoration

Dr. S. Vouliotis

## Fuji IX GP Extra and G-COAT PLUS



1. Cavity preparation



2. Conditioner is applied to dentine



3. Un-cut enamel is acid etched



4. Fuji IX GP EXTRA is placed



5. G-COAT PLUS is applied to the glass ionomer and surrounding etched enamel

## Fuji II LC and G-COAT PLUS



1. Cervical lesion



2. Apply conditioner



3. Inject Fuji II LC



4. Contour and finish



5. Apply G-COAT PLUS



6. Finished restoration

# Your composite restorations just got better

## Clinical case with G-BOND, Gradia Direct and G-COAT PLUS



1. Cervical caries



2. G-BOND is applied. Wait 5-10 seconds



3. Air dry with maximum pressure



4. Composite placed and finished



5. One application of G-COAT PLUS is brush applied



6. Light cure



7. Completed restoration



8. One week later

## Repairing an existing composite restoration



1. Existing restoration with marginal discrepancies



2. After re-contouring with a fine diamond



3. Completed restoration following application of G-COAT PLUS

Dr. J. Sugisaki

Dr. J. Sugisaki

# Your temporary crowns just got better

## Fuji II LC and G-COAT PLUS



1. Crown preparation



2. Excess is removed from the temporary crown



3. The trimmed temporary shade A2



4. One application of G-COAT PLUS



5. Completed temporary crown after light curing



6. The crown is seated with a temporary cement

Dr. G. Milgich

## Q&A

**Q** Will G-COAT PLUS bond to itself if re-applying at a later stage?

**A** Yes.

**Q** How long will G-COAT PLUS last in the mouth?

**A** This is very dependent on the oral environment and potential for wear. Longevity of G-COAT PLUS is within the range of six months to 2+ years.

**Q** Should I place G-COAT PLUS on all glass ionomer restorations?

**A** Yes, for restorative glass ionomers like Fuji IX GP EXTRA and Fuji II LC the improved wear resistance, surface smoothness and aesthetics make for a superior restoration that will perform beyond current expectations. Cocoa Butter or Fuji Varnish remain our recommendations for Fuji VII when placed as a surface protection or caries stabilisation material.

**Q** Will a layer of G-COAT PLUS stop fluoride release from the glass ionomer?

**A** Fluoride will still be released into surrounding cavity walls to create zones of inhibition and into the cavity floor to help internal remineralisation, however G-COAT PLUS will reduce the amount of fluoride able to be released into saliva until the coating has worn through to the glass ionomer surface.

**Q** Will a layer of G-COAT PLUS stop saliva strengthening of the glass ionomer?

**A** No. The latest research has shown Fuji IX GP EXTRA will get even stronger if a protective coating is in place for some time before wearing away and exposure of the glass ionomer to saliva strengthening. We now understand that protecting the glass ionomer for longer means better maturation of the glass ionomer reaction and then delayed exposure to saliva will further strengthen the cement. This means Fuji IX GP and G-COAT PLUS, with delayed saliva hardening is the strongest glass ionomer restoration possible.

**Q** Does G-COAT PLUS smell?

**A** Yes. G-COAT PLUS contains several different monomers including methyl methacrylate which does have an evaporative odour. The advantages of using methyl methacrylate include its ability to flow and evenly wet surfaces with a uniform coating, its high strength, and that immediately following application the evaporation means you can polymerise without getting an air inhibition layer.

**Q** What is the adhesive monomer used in G-COAT PLUS?

**A** The adhesive monomer is a phosphoric acid ester monomer. This monomer facilitates strong adhesion to a variety of different surfaces.

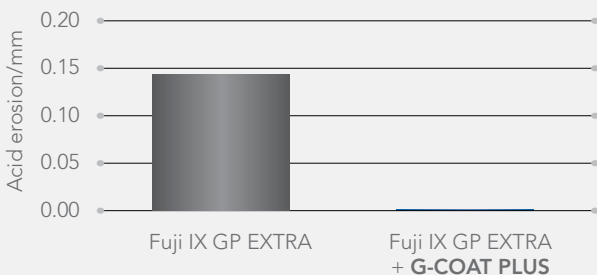


- Q** Why is it contraindicated to dispense G-COAT PLUS directly onto the application brush?
- A** G-COAT PLUS contains a high viscosity monomer which might stick around the dispensing nozzle when in contact with an application brush.
- Q** Why is it contraindicated to dry with air prior to light curing?
- A** Air drying will evaporate the volatile methyl methacrylate leaving an uneven coating surface.
- Q** What is the size of nano-filler used in G-COAT PLUS?
- A** 40 nm.
- Q** How thick is the layer of G-COAT PLUS?
- A** Approx 35-40 microns.
- Q** What does it mean if the surface is yellow and tacky after light curing?
- A** The G-COAT PLUS is not fully cured. Light irradiate for a further 20 seconds.
- Q** What happens if the surface is contaminated with water, blood or saliva prior to light curing?
- A** Wash and dry the surface and repeat the coating procedure.
- Q** How many applications per bottle of G-COAT PLUS?
- A** Approx 250 drops.
- Q** How much working time do I have once I have dispensed G-COAT PLUS?
- A** Up to 60 seconds.
- Q** Do I need to refrigerate G-COAT PLUS?
- A** If not in use for a long period of time we recommend storage in a refrigerator. Otherwise for routine use we recommend storage at room temperature (4-25°C).
- Q** What is the shelf life of G-COAT PLUS?
- A** Two years from date of manufacture.

# Further technical information

## Effect of G-COAT PLUS on acid resistance of Fuji IX GP EXTRA.

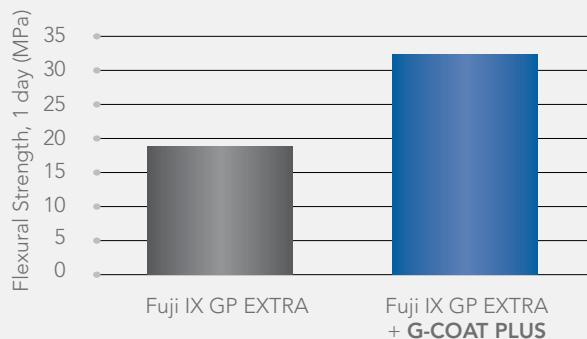
In more acidic oral environments **G-COAT PLUS** provides acid resistance to Fuji IX GP restorations.



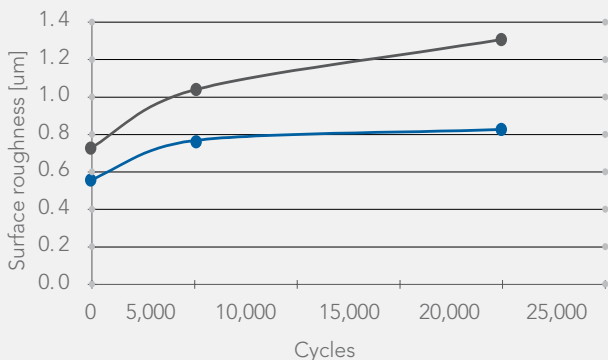
R&D Dept. GC Corporation.

## Effect of G-COAT PLUS on flexural strength of Fuji IX GP EXTRA.

The application of G-COAT PLUS increases both the flexural strength and fracture toughness of a Fuji IX GP restoration.



R&D Dept. GC Corporation.



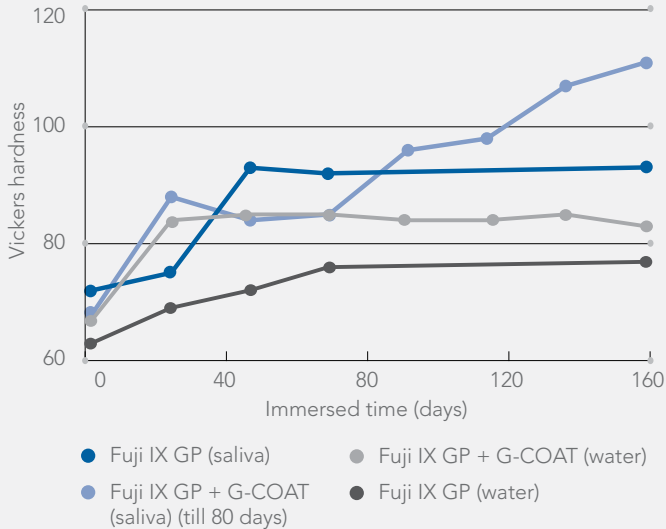
R&D Dept. GC Corporation.

## Effect of G-COAT PLUS on surface smoothness during wear testing of Fuji IX GP FAST.

Smoother surfaces are achieved and maintained after application of G-COAT PLUS onto Fuji IX GP FAST.

- Fuji IX GP FAST + G-COAT PLUS
- Fuji IX GP FAST

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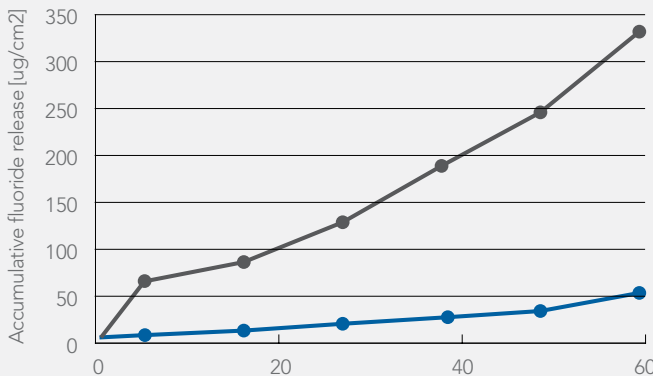


Effect of G-COAT PLUS on maturation strength and saliva hardening of Fuji IX GP FAST.

Fuji IX GP will achieve a higher surface hardness when exposed to saliva due to uptake of calcium and phosphate into the glass ionomer matrix. The effectiveness of saliva hardening can be seen by comparing surface hardness; the light purple line represents Fuji IX GP stored in water vs light green line representing Fuji IX GP stored in saliva.

When Fuji IX GP is laminated with G-COAT PLUS it exhibits an increase in surface hardness as G-COAT PLUS protects Fuji IX GP from water uptake and allows the glass ionomer reaction to mature, see dark purple line. Over time we should expect G-COAT PLUS to slowly wear and at some point the Fuji IX GP will be exposed. The aqua line represents what happens with delayed saliva exposure. In this case the coating was removed at 80 days and the resulting uptake of calcium and phosphate from saliva further increased the surface hardness. This outcome supports the use of G-COAT PLUS on Fuji IX GP as the best way to obtain the maximum maturation strength from the glass ionomer.

R&D Dept. GC Corporation.



Effect of G-COAT PLUS on fluoride release of Fuji IX GP FAST.

G-COAT PLUS will allow a small quantity of fluoride to be released into the oral environment. Fluoride release into the cavity walls and floor is not affected by G-COAT PLUS.

## G-COAT PLUS CONTAINS

- Bottle G-COAT PLUS 4ml (1)
- Disposable dispensing dishes (20)
- Microtip applicator (50)
- Applicator holder (1)



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