



# Get in front of the 8 ball with the new Fuji VII GP

The first auto-cure, resin reinforced glass ionomer restorative



*GC*

# 8 reasons to choose Fuji VIII GP

## Auto-cure, resin reinforced glass ionomer restorative

### 1 Easy to handle and quick setting

Once dispensed, Fuji VIII GP moves quickly to a gel phase where **manipulation is easy with a microbrush**. Within 60 seconds you can move to the next stage of placement. High speed finishing can begin after 6 minutes.

“...superior in its handling and wettability in deep dentine margins. Easy to pat down with a microbrush”

Dr Andrew Brostek, Perth

### 2 Optimal marginal adaptation

Fuji VIII GP is dispensed with a free-flowing consistency to ensure **optimal adaptation and chemical bonding**.

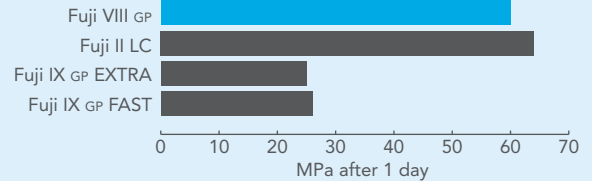
### 3 Strong chemical bonding

Fuji VIII GP has evolved from GC's **proven adhesion technologies** in auto-cure resin reinforced glass ionomer cements – Fuji PLUS (for crown and bridge cementation) and Fuji ORTHO (for bonding orthodontic brackets).

### 4 Higher flexural strength

Fuji VIII GP is resin reinforced to provide a **robust restorative foundation** ensuring long-term integrity of the adhesive interface.

#### Flexural Strength

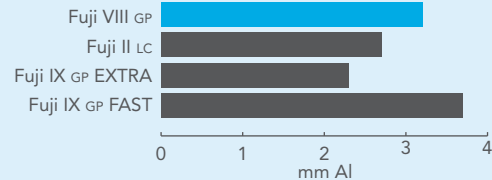


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### 5 A high level of radiopacity

is important for long-term assessment when Fuji VIII GP is used as dentine replacement in **deep proximal boxes**.

#### Radiopacity



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**6** Indicated for Class III and V where increased **acid resistance** from resin reinforcement may assist patients with erosion and/or dry mouth.



Dr Larisa Chepinska, Ukraine

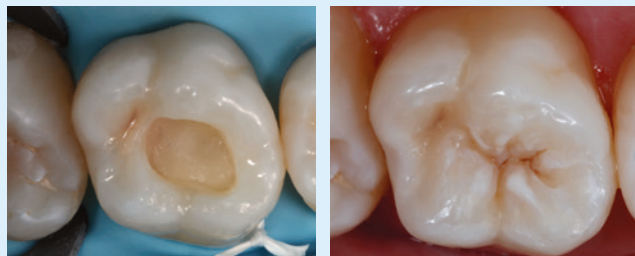
**7** Auto-cure is your **guarantee of complete cure** and predictable adhesion in deep proximal boxes when placed as a base in the sandwich technique.



Dr Graeme Milichich, New Zealand

A new restorative option for  
forward thinking dentistry

**8** Bulk placement with **no polymerisation shrinkage stress** is ideally suited for the 'Modified Super-Closed Sandwich Technique' (Dr Jason Smithson, UK).



Dr Jason Smithson, UK

# The Modified Super-Closed Sandwich Technique

Dr Jason Smithson, United Kingdom

An innovative use of Fuji VIII GP has been described by Dr Jason Smithson. Smithson termed his approach as 'The Modified Super-Closed Sandwich Technique'. This technique is an alternative solution for the restoration of large Class II cavities.\* According to Smithson, the use of Fuji VIII GP "may offer the advantages of a bond to the overlying composite resin, improved translucency and therefore aesthetics over traditional glass ionomer". This technique uses Fuji VIII GP as a bulk filling material beneath composite to provide a fast aesthetic base that significantly reduces the stress on adhesive interfaces that is developed from polymerisation contraction in high 'c-factor' cavities.



1 Enamel selectively etched.



2 Fuji VIII GP applied as a "megafiller".



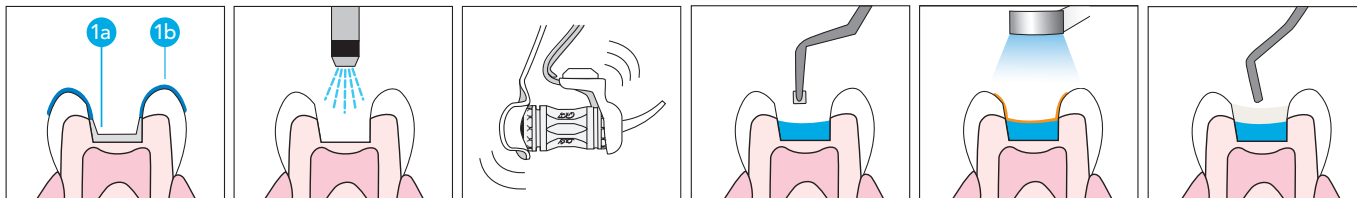
3 Hyperchromatic dentine, G-aenial CVD.



4 Finished restoration

\*Smithson J. Technique tips – The modified super-closed sandwich technique. Dental Update 2013; 40(2): 155-156.

## Fuji VIII GP Sandwich Technique Guide



**1a** Apply GC CAVITY CONDITIONER to dentine (10 sec.)

**1b** Simultaneously selectively etch enamel (10 sec.)

**2** Rinse and gently dry.

**3** Activate and mix Fuji VIII GP capsule (10 sec.)

**4** Dispense within 10 sec to replace dentine. Adapt using a microbrush.

**5** Apply a hydrophobic bond\* to etched enamel and surface of Fuji VIII GP (Light-cure).

**6** Place composite and light-cure in increments

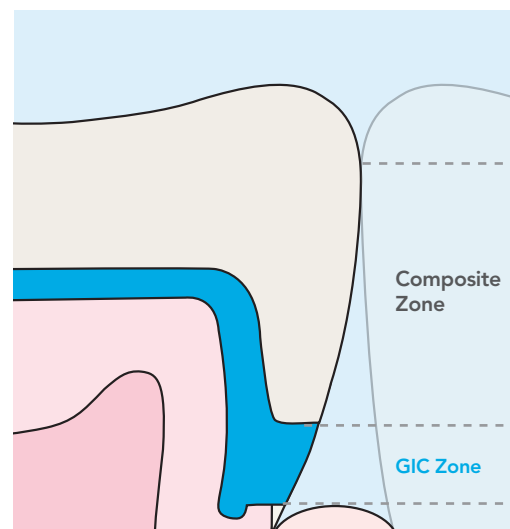
\* If using a hydrophilic bond (i.e. containing water and/or solvent) wait for 3 minutes from the start of the mix of Fuji VIII GP before application.

## Recommended Open Sandwich Technique

When there is minimal or no enamel at the base of a proximal box, Fuji VIII GP is injected into the base of the cavity to restore the lower third of the height of the proximal wall. Fuji VIII GP ensures a long lasting marginal seal through chemical bonding and provides an additional level of protection from ongoing fluoride release. The upper two thirds of the proximal wall are then restored with composite resin as an enamel replacement.

*“In dentistry, we need to understand why we do a certain procedure to get optimal clinical outcomes. I am using Fuji VIII GP in open sandwich restorations for bulk fill replacement of dentine. By doing this, I eliminate concerns about inadequate photo-polymerisation in the interproximal area, and reduce the stress on adhesive interfaces caused from polymerisation and improve my clinical outcome.”*

Prof Ian Meyers, The University of Queensland



# Q&A

## 1. What is the basic chemical difference between Fuji IX, Fuji VIII GP and Fuji II LC?

Fuji IX is a conventional-cure glass ionomer cement (GIC) setting through an auto-cure acid-base reaction.

Fuji II LC is a light-cured resin reinforced GIC that sets through a combination of auto-cure acid-base reaction and light-initiated polymerisation of the resin component.

Fuji VIII GP is an auto-cure resin reinforced GIC. Both the acid-base reaction and resin polymerisation are initiated once the components are mixed.

## 2. What are the main advantages of resin reinforced GICs over conventional GICs?

Resin reinforcement helps improve the fracture toughness and flexural strength of GICs. This, in turn, improves the bond strengths as adhesion failure is typically cohesive within the GIC (the actual chemical bond of GIC to tooth is very strong – the weakest link has been the glass ionomer itself).

Resin reinforcement also helps acid resistance which may be important for certain clinical indications (e.g. more erosive environments).

**“Fuji VIII GP could be used as a lining or base in large restorations where increased strength is required and the self-cure allows bulk placement.”**

Prof Ian Meyers, The University of Queensland

## 3. When/where should I use Fuji VIII GP and Fuji IX GP EXTRA?

Fuji VIII GP and Fuji IX GP EXTRA are both auto-cure restorative GICs, suitable for Class III and V restorations, and for use as a base in either closed or open sandwich technique. Depending on handling and setting time preferences, you can choose either material for these indications.

Fuji IX GP EXTRA features superior wear resistance, so it is specifically indicated for restoration of occlusal surfaces and for use as a long-term transitional restoration.

Fuji VIII GP has superior acid resistance from resin reinforcement and therefore may be better suited to clinical cases where patients have more acidic oral environments.

## 4. How much fluoride does Fuji VIII GP release?

The fluoride release profile of Fuji VIII GP is very similar to Fuji II LC and Fuji IX GP FAST. Fuji IX GP EXTRA and Fuji VII are higher fluoride releasing GICs.

## 5. Can I light-cure Fuji VIII GP?

There is no photoinitiator in Fuji VIII GP, so light curing has no effect on initiating resin polymerisation. However light curing does introduce heat to the auto-cure chemical reaction and this will accelerate the setting reaction.



## 6. Where might I use Fuji VIII GP?

Originally conceived as an auto-cure anterior glass ionomer restorative, Fuji VIII GP has emerged to fill a greater need as a bulk placed radiopaque base where advantages from resin reinforcement enhance the benefits of a chemical-curing glass ionomer restorative.

Fuji VIII GP gives confidence of complete cure at the base of a proximal box and allows bulk placement without polymerisation shrinkage stress.

Fuji VIII GP has a quick initial set in the mouth and a surface that hydrophobic bonding resins will adhere directly to. This means composite resin can be quickly placed on top of a base of Fuji VIII GP. Combined with a high level of radiopacity and great handling, Fuji VIII GP is well suited to base applications.

## 7. What is the difference between hydrophobic and hydrophilic bonding agents?

Hydrophilic bonding agents contain water. Examples of these are one bottle bonding systems, typical of the 7th generation bonds, and the primers found in two bottle bonding systems.

## 8. After I have placed Fuji VIII GP in a class V cavity, when can I start polish/finish procedures?

Fuji VIII GP moisture critical time is 3 minutes from start of mix. To allow further maturation of the Fuji VIII GP, wait 6 minutes from the start of the mix before starting final finishing and polishing.

G-COAT PLUS can be applied as an interim protection from water and it is recommended as a final coat to further enhance wear resistance.

## 9. Can I use Fuji VIII GP in patients with dry mouth/dental erosion?

Yes; Fuji VIII GP can be used for patients with reduced salivary flow and exposure to frequent acid challenges. However, it should be noted that in presence of a cariogenic biofilm and acidic conditions, restorative materials, including resin composites and adhesives, will degrade over time.<sup>#</sup>

## 10. How much resin is in Fuji VIII GP?

Fuji VIII GP resin content is 9% by weight.

## 11. How aesthetic is Fuji VIII GP?

Fuji VIII GP is slightly opaque on placement. It then increases in translucency over the following days to more closely blend with the surrounding tooth structure.



Immediately after placement



3 days after placement

Dr Larisa Chepinska, Ukraine

## Physical properties of Fuji VIII GP and other restorative materials

		Fuji VIII GP	Fuji II LC	Fuji IX GP EXTRA	Fuji IX GP FAST
Powder/Liquid ratio (g/g)		3.4/1.0	3.3/1.0	3.6/1.0	3.6/1.0
Mixing time		10"	10"	10"	10"
Working Time (from start of mix, 23°C)		1'30"	3'15"	1'15"	1'15"
Net setting time (from start of mix, 23°C) <sup>*1</sup>		2'10"	20"	2'00"	2'00"
Moisture critical time (37°C, after starting mix)		3'00"	–	2'30"	3'00"
Final Finishing Commencing Time (37°C, after starting mix)		6' 00"	–	2'30"	3'00"
Flexural strength (MPa)	After 1 day	60 ±5	64 ±7	25 ±1	26 ±3
Compressive Strength (MPa) <sup>*1</sup>	After 1 day	210 ±7	189 ±9	255 ±14	268 ±10
Tensile bond strength (MPa)	Bovine Dentine (1 day)	6.6 ±2.2	9.3 ±2.4	6.0 ±1.4	5.8 ±2.2
	Bovine Enamel (1 day)	10.0 ±3.0	9.3 ±0.6	6.4 ±2.2	6.9 ±1.6
Radiopacity (mm Al)		3.2 ±0.2	2.7 ±0.2	2.3 ±0.2	3.7 ±0.3

Test conditions: Temperature (23°C+/-1°C) Relative humidity (50 +/-10%)

\*1: Test Method based on ISO 9917 : 1991(E) (Dental water-based cements)

GC Corporation, R&D Department

### Fuji VIII GP

Box 50 Capsules

Shades: A2, A3, A3.5



GC Australasia Dental Pty Ltd  
1753 Botany Road, Banksmeadow  
NSW 2019, Australia

**T:** +61 2 9316 4499  
**F:** +61 2 9316 4196  
**www.gcasia.info**