G-CEM

Cement that simply excels

Innovative chemistry
Smooth consistency
So **easy** to use

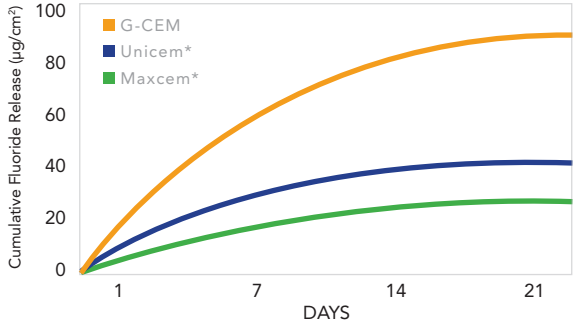
G-CEM - Innovative chemistry

G-CEM features a reaction between acidic resins and glass ionomer powders in the presence of water to form a hybrid cement structure that matures quickly and exhibits a unique combination of glass ionomer cement and resin characteristics.

More protection

G-CEM delivers a higher fluoride release than any other self-adhesive resin cement. The key to continuous fluoride release comes from the new hybrid resin/glass ionomer chemistry that creates a fluoride-rich gel phase around each glass filler particle. This gel phase, typically only seen in glass ionomer cements, is essential for the continuous movement of fluoride ions both into and out of the cement.

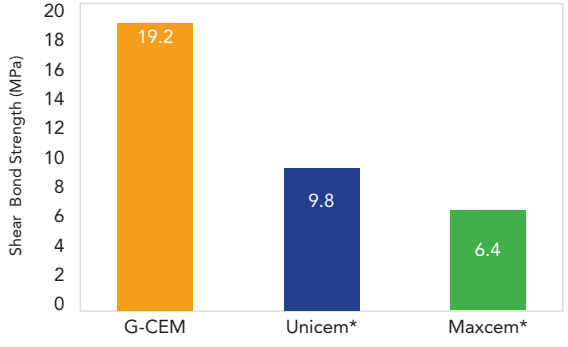
CUMULATIVE FLUORIDE RELEASE



Stronger adhesion

G-CEM's acidic resins, 4-MET and phosphoric acid ester monomer, will chemically and micromechanically bond and seal the prepared tooth surface. G-CEM's high early strengths mean that as your patient leaves the surgery, the rapidly maturing cement is already protecting the integrity of the cement/tooth interface.

DENTINE BOND STRENGTH (24hr light cure)



Universal application

G-CEM will cement a wide range of indirect restorations made from metal, ceramic (including chairside milled, pressed and high strength ceramics) or composite;

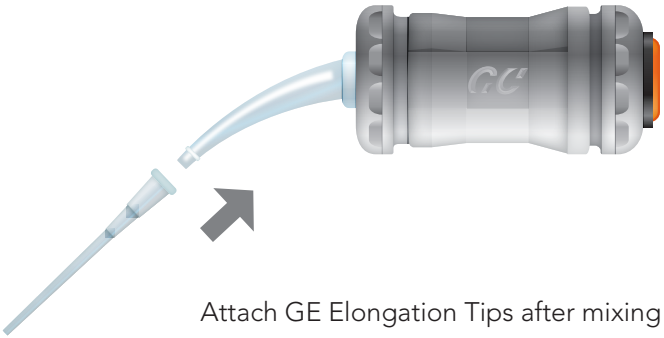
• Inlay/onlays • Crowns • Bridges • Endodontic posts

G-CEM. Innovation for consistent clinical success

The new hybrid glass ionomer/resin chemistry means G-CEM is more adhesive, more dimensionally stable and faster setting for a more consistent cementation result.

The very best capsule

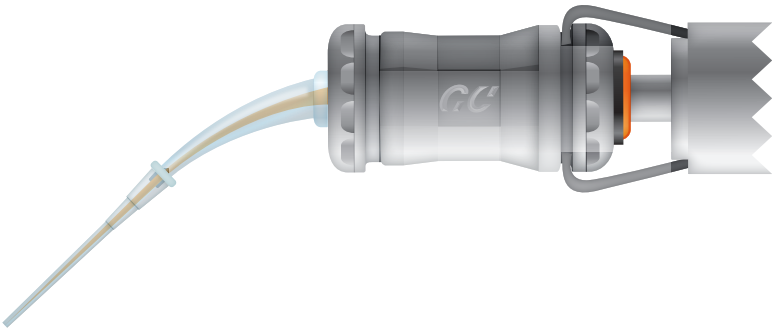
G-CEM capsules contain 70% more material than competitor universal cements so that large crowns or even multiple units can be cemented with one capsule. G-CEM capsules are designed to take GC Elongation Tips which offer superior access for post cementation. G-CEM capsules can be refrigerated to extend working time. Each capsule is foil wrapped to protect it from humidity during storage and to ensure a two year shelf life.



Attach GE Elongation Tips after mixing

Simplicity – the key to G-CEM's success

While no other cement can match the technical innovation of G-CEM, the heart of its clinical success comes from its ease of use, smooth consistency and the simplest clean up of excess.



Light cure for 2-4 seconds until the cement has reached a gel phase. The excess cement is then easily removed using a scaler tip.

G-CEM. Delivering consistency and simplicity

Case 1

A composite crown requires replacement. A post space has been prepared and G-Bond was applied to all surfaces. NB: The patient could not tolerate rubber dam.

G-CEM was then injected to the base of the post space using a capsule elongation tip that was clipped onto the G-CEM capsule. G-CEM capsules can be refrigerated to extend their working time.

The post was inserted, G-CEM polymerised and G-ænial posterior composite was incrementally placed to form a composite core.

Case 2

Crown preparations are cleaned with pumice and water to remove all remnants of temporary cement.

Two G-CEM Translucent shade capsules were required to cement the 6 zirconium core crowns.

Light cure for 2-4 seconds until the cement has reached a gel consistency. A scaler tip easily peels away the excess cement.

Case 3

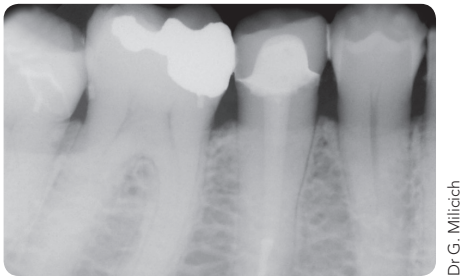
A patient of limited means presents with deep caries into the pulp and a desire to keep as much of the remaining tooth as possible. The tooth is subsequently root filled.

Post preparation. Refrigeration will extend the working time of G-CEM.

A carbon fibre post cemented with G-CEM. During the gel phase excess is easily removed.

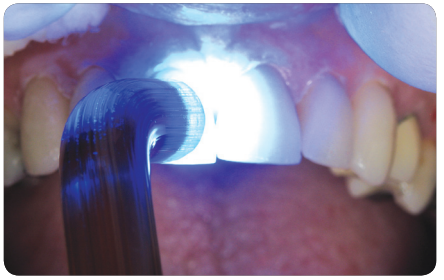
Completed crown preparation.

Completed E4D e.max (lithium disilicate) low translucency porcelain crown.



Radiograph of completed rootfilling, post core and crown.

Dr G. Milicich



Light cure each surface for 20 seconds.

The finished restorations.

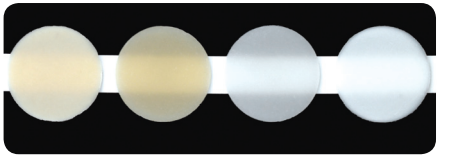
Dr G. Milicich

Simplicity, no fuss application and the fastest clean up of any cement.

Completed composite crown using Gradia Direct composite.

Dr G. Milicich

G-CEM Shades



AO3 A2 Translucent BO1

G-CEM. New hybrid resin/glass ionomer technology

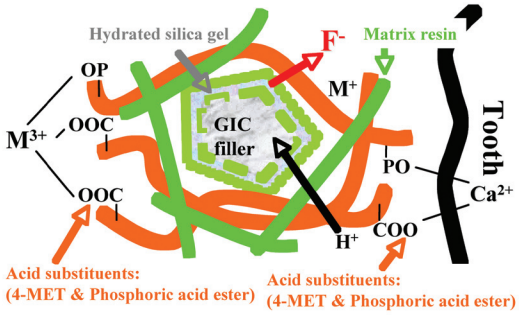
G-CEM innovation comes from the GC Research and Development team that is driving the evolution of exciting new hybrid resin/glass ionomer technology.

G-CEM powder is fluoro-alumino-silicate glass from the same family of glass filler used in glass ionomer cements.

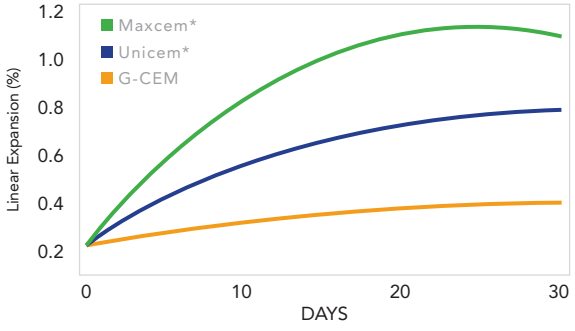
G-CEM liquid contains strong frame-forming resins, UDMA and Dimethacrylate, as well as acidic resins; 4-MET and phosphoric acid ester monomer.

The other essential ingredient in the G-CEM liquid is a small amount of water. Previous technology in universal cement systems had relied on water within the tooth to facilitate post placement acid-base reactions. G-CEM liquid contains water so that when it is mixed with G-CEM powder the acidic resins can immediately react with the glass ionomer fillers to form a hydrated silica gel phase around the glass particles, helping strengthen the cement matrix and allowing for significant levels of fluoride release. This reaction is in addition to the chemical and light curing resin reactions.

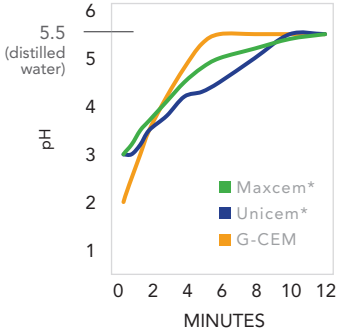
The innovative hybrid resin/glass ionomer technology in G-CEM ensures rapid neutralisation after mixing to create a more stable cement, with minimal expansion and a strong, fast setting dark curing reaction.



LINEAR EXPANSION



PH CHANGE OF MIXED CEMENT OVER TIME

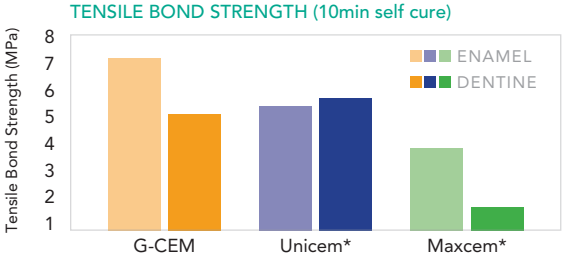


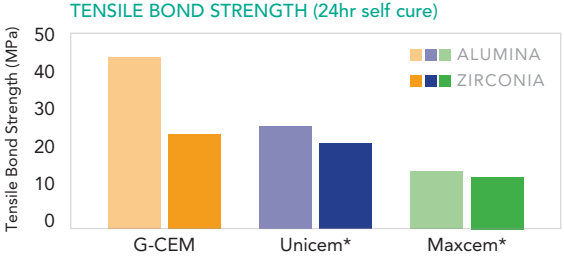
Test method:
pH-test paper was moistened with distilled water (pH 5.5) and mixed cements were placed on the moist pH-test paper at specified time intervals. pH neutralisation was achieved by G-CEM within 6 minutes.

Adhesion

G-CEM utilises two self etch adhesive monomers, 4-MET and phosphoric acid ester, which have a long history of stable chemical adhesion to dentine and enamel. The inclusion of a small amount of water within the G-CEM formulation means reasonable variations in moisture on the tooth surface will not interfere with the G-CEM setting reaction or its strong chemical adhesion.

G-CEM is a universal cement able to strongly adhere to a wide variety of different surfaces. A clean surface is the only preparation required for adhesion to the tooth. Please consult your ceramist or ceramic manufacturer for their specific recommendations on ceramic surface pre-treatment.





Comparative physical properties

		G-CEM	Unicem*	Maxcem*
Working Time (23°C, min:sec)		2:30	6:30	3:30
Compressive Strength (MPa, 1 Day)	Self cure	231	198	226
	Light cure	244	240	266
Vickers Hardness (Hv, 1 Day)	Self cure	54.4	41.0	27.7
	Light cure	64.0	57.1	29.3
Tensile Bond Strength (MPa, 10 min self cure)	To Bovine Enamel	7.2	4.8	4.1
	To Bovine Dentine	4.9	4.8	0.9
Tensile Bond Strength (MPa, 24hr self cure)	To Bovine Enamel	9.3	7.2	6.2
	To Bovine Dentine	6.8	6.0	0.2
Film Thickness [µm]		16.7	18.0	13.0
Equivalent Al Thickness [mm]		2.58	2.5	2.29

* Not a trademark of GC Corporation

R&D Dept. GC Corporation

GC Luting Navigation Chart

Cementation indications	Surface pre-treatment†		G-CEM	Fuji PLUS	FujiCEM	Fuji I
- Inlays, Onlays	Sandblast or etch	Ceramic Primer	Self-adhesive luting cement	Resin reinforced glass ionomer cement	Resin reinforced glass ionomer cement	Conventional glass ionomer cement
Metal, PFM						
- Inlays, Onlays	✔		Y	Y	Y	Y
- Crowns	✔		Y	Y	Y	Y
- Bridges	✔		Y	Y	Y	Y
- Endodontic Posts	✔		Y	Y	Y	Y
Ceramics *(less than 600 MPa flexural strength)*						
- Inlays, Onlays	✔	✔	Y	Y	Y	
- Crowns	✔	✔	Y			
- Bridges	✔	✔	Y			
High Strength Ceramics *(greater than 600 MPa flexural strength)*						
- Crowns	✔		Y	Y	Y	Y
- Bridges	✔		Y	Y	Y	Y
- Endodontic Posts	✔		Y	Y	Y	

G-CEM is part of GC's family of luting cements. G-CEM can be used either as a universal cement for all restorations or used in partnership with your choice of glass ionomer cement (eg Fuji PLUS).

† Information on pre-treatment is a general guide only. Please refer to your ceramist or ceramic manufacturer for pre-treatment advice specific to your choice of ceramic.

G-CEM CAPSULES

Box 50 capsules
Shades: Translucent, A2, AO3, BO1
Assorted: Contains 20 capsules each A2, Translucent; 5 capsules each AO3, BO1

GC Capsule Elongation Tip: 50 pieces

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