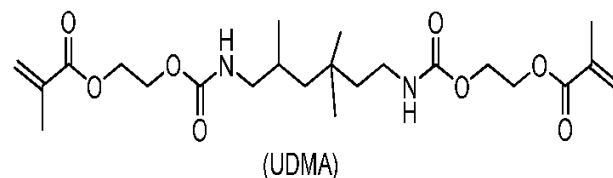
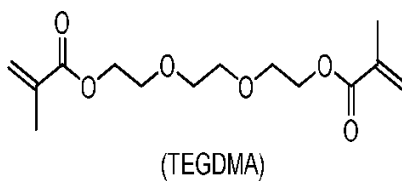
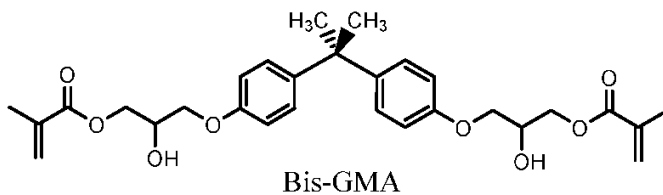


BULK FILL FLOW COMPOSITE



INTRODUCTION:

Composite dental resins (better known as "composite resins" or simply "filled resins") are dental cements made from synthetic resins. Synthetic resins evolved as restorative materials since they were insoluble, had a good dietary appearance, were insensitive to dehydration, easy to manipulate and economical. Composite resins are most commonly composed of Bis-GMA and other dimethacrylate monomers (TEGMA, UDMA, HDDMA), a filler material such as silica, and, in most applications, a photoinitiator (Camphorquinone).



Bulk filler is composed of non-agglomerated silica and zirconia particles. It has nanohybrid particles and filler load of 77% by weight. Designed to decrease clinical steps with possibility of light curing through 4-5mm incremental depth and reduce stress within remaining tooth tissue. Unfortunately, it is not as strong in compression and has decreased wear resistance compared to conventional material. Particle size can vary, but in many cases, they are in the range of 0.7 to 3.5 micrometers (μm).

Bulk Fill Light Cure Composites produced by Medental International. There are many types of medical procedures that benefit from the restoration of all types of cavities. It is a composite designed to increase aesthetics and easy polishing in class V, III, and IV cavities in anterior teeth. Its indicated use, as mentioned by the manufacturer, is that the light cure composite can be used in cavities where there is occlusal loading due to its high particle resistance.

Some key points:

Composition: These resins are made up of polymeric groups reinforced by an inorganic glass phase. Unlike conventional resins, they have less inorganic filler and certain substances or rheological modifiers have been eliminated to improve their handling.

organic matrix	Union medium	Inorganic Matrix	Others
Encore - GMA	Silane	Silica fillers in low concentration 3 - 10µm size	Camphoroquinone
UDMA			Colorants
TEGMA			

Bulk-Fill resins are restorative materials designed to simplify and accelerate the dental restoration process. They are characterized by allowing massive filling of cavities in a single increment, which saves time and makes the dentist's work easier. These resins are applied in blocks of 4 to 10 mm thickness, which speeds up the procedure

Flowable Light Cure Composite	Flexural Stress: 100 MPa	Minimum Value: 80 MPa (ISO 4049:2019)
	Curing Depth: 4 mm	-----
	Water Absorption: 15 µg/mm ³	Maximum Value: 40 µg/mm ³ (ISO 4049:2019)
	Solubility: 2 µg/mm ³	Maximum Value: 7.5 µg/mm ³ (ISO 4049:2019)

Clinical applications:

- They can be placed in blocks (5 mm increments for class II and 4 mm for class I).
- They are ideal for filling deep cavities.
- Its viscosity allows easy handling and compaction without adhering too much to instruments.

Clinical selection:

Bulk Flow Composite: Designed to be used in deep restoration where it is possible to put up to 5mm of bulk composite in one action. As a basis for the placement of the final layer of hybrid, micro hybrid or nanohybrid composite of the appropriate shade.

Colors:

Medental's Bulk Fill Flow Light Cure composite resin handles a wide range of shades according to the Vita Shade: A1, A2, A3, A3.5, B1, B2, B3, C1, C2, C3, D2, D3 Incisal and Opaque.

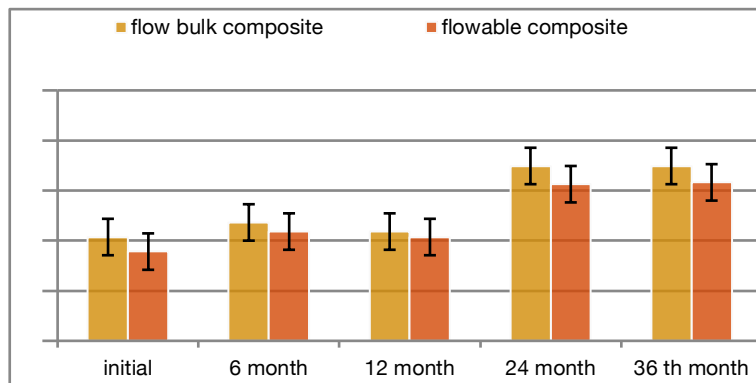
Product performance used in other dental applications:

A clinical evaluation carried out on the Bulk Fill light cure composite resin from Medental Clinical Evaluation Report revealed that it can be useful and almost similar in applications in which

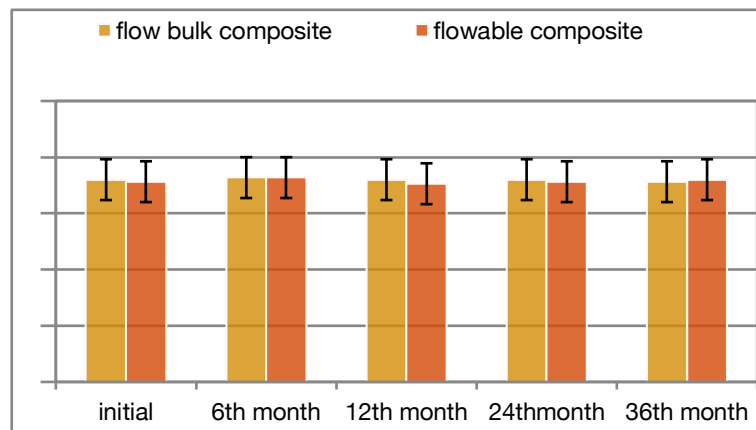
Flowable Light Cure Composite Medental resin processes are required. The evaluation was carried out with a period of 36 months of monitoring by 3 independent dentists.

The data obtained in this study of the photopolymerizable flow bulk composite used as a restorative material shows its total effectiveness to date, which is 36 months with reviews every 4 months and with this favor easy manipulation in clinic.

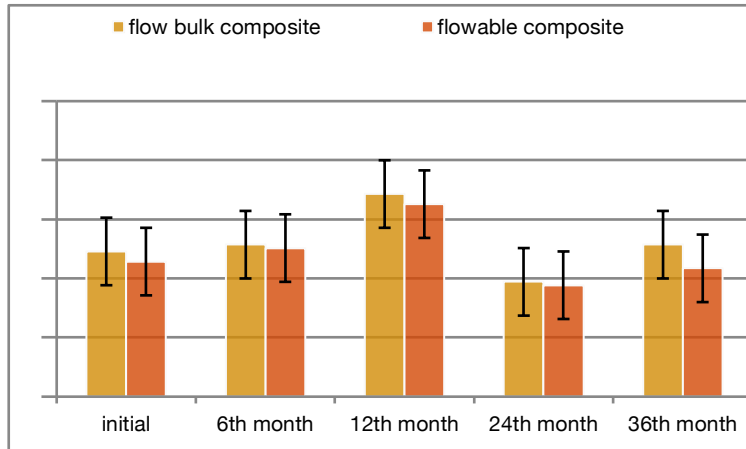
This graph represents the **color stability** capacity of the Bulk Fill Light Cure Composite Medental resin with respect to a Flowable Light Cure Composite at 6, 12, 24, and 36 months.



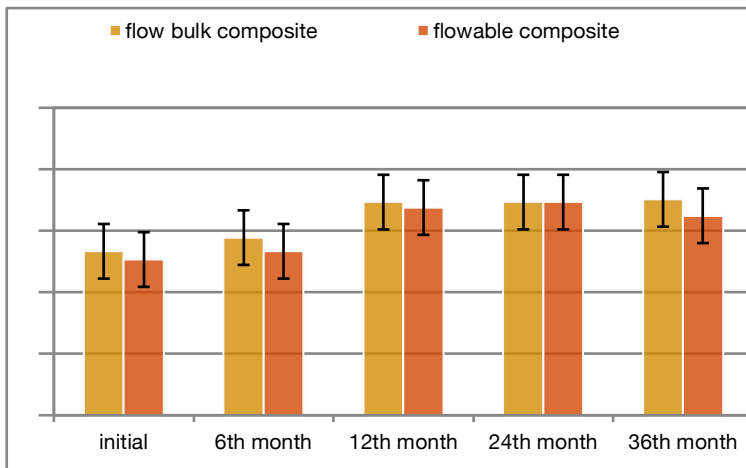
This graph represents the marginal integrity of the Bulk Fill Light Cure Composite Medental resin with respect to a Flowable Light Cure Composite resin at 6, 12, 24, and 36 months.



This graph represents the surface texture of the Bulk Fill Light Cure Composite Medental resin with respect to a Flowable Light Cure Composite at 6, 12, 24, and 36 months.



This graph represents the Finish of obturation of the Bulk Fill Light Cure Composite Medental resin with respect to a Flowable Light Cure Composite at 6, 12, 24, and 36 months.



It has been shown that there is no operational sensitivity compared to light-curing resins from other brands and good color stability and permanence in the mouth to date.

In relation to the color change, this exists, however, there are no statistically significant differences compared to a photopolymerizable resin from another brand, so its complete application on anterior teeth is recommended following the protocol recommended by the manufacturer due to its high aesthetics that provides the particle.

Bulk Fill Light Cure Composite Medental resins are a great block restoration alternative and are easy to handle. This study shows that these are excellent filling materials and of great help to the dental surgeon.