

HYBRID LIGHT CURE COMPOSITE MEDENTAL



Introduction:

Composites or composite resins are synthetic materials mixed heterogeneously forming a compound, as their name indicates. 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.

Hybrid composites were introduced in the 1980s and are more commonly known as resin-modified glass ionomer cements (RMGIC). The material consists of a powder containing a radiopaque fluoroaluminosilicate glass and a photoactive liquid contained in a dark bottle or capsule. The material was introduced because resin composites alone were not suitable for class II cavities. RMGIC can be used instead. This mixture of resin and glass ionomer allows the material to be set by light activation (resin), allowing for a longer working time. It also has the benefit that the glass ionomer component releases fluorine and has superior adhesive properties. The hybrid filler. It was designed to get the benefits of both macrofilled and microfilled fillers. Resins with hybrid filler have reduced thermal expansion and higher mechanical strength. However, it has higher polymerisation shrinkage due to a larger volume of diluent monomer which controls viscosity of resin.

Device description:

HYBRID LIGHT CURE COMPOSITE At MEDENTAL we manufacture the universal light-curing resin for all types of cavity restorations, inlays, onlays and indirect veneers, with a unique combination of barium glass fillers with state-of-the-art curing agents and Bis- GMA-based resin systems making our Hybrid Composite an ideal filling material for anterior or posterior restorations. Its use ranges from one week to four months, but they can also be used as definitive cements, depending on the hardening method.

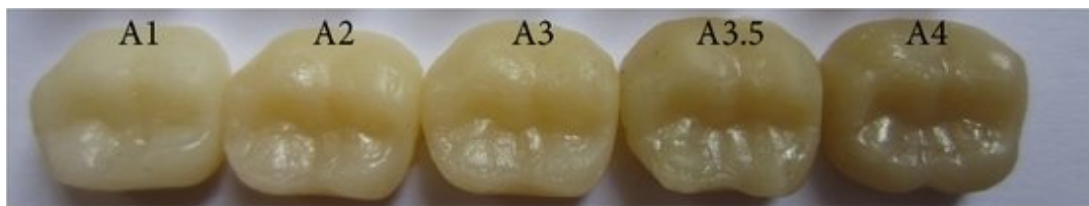
Intention of use:

HYBRID: For aesthetic class I, II and V posterior restorations. For anterior and posterior restorations. All cavity classes, inlays, onlays and indirect veneers. Such as restoring caries and performing aesthetic cementations in the following conditions:

- Anterior or posterior teeth with the presence of class I and V caries, with adequate remaining healthy dental structure.
- Anterior or posterior teeth with dental fractures with no more than 50% loss of dental structure.
- Anterior or posterior teeth with mild and moderate wear facets where the occlusal stress factor can be controlled.
- Anterior or posterior teeth with aesthetic alterations or alterations in shape, color and position are considered to be treated with a direct surgical procedure for their correction.

Colors:

A1, A2, A3, A3.5, B1, B2, B3, C1, C2, C3, D2, D3 Incisal and Opaque



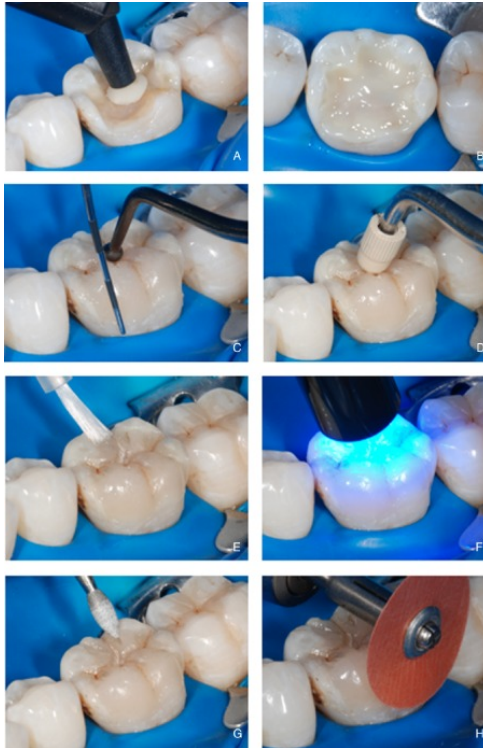
	Results	ISO 4049:2019 values
Hybrid Light Cure Composite Medental	Curing depth: 2.79 mm	1.0 mm (Opaque) Minimum 1.5mm(Other) Minimum
	Flexural Stress: 110 MPa	80 MPa Minimum
	Water Absorption: 15 mg/μm ³	40 mg/μm ³ Maximum
	Solubility: 0.20 μm ³	7.5 mg/μm ³ Maximum

Compression resistance: Hybrid Light Cure Composite Medental resin usually has good compression resistance, which is important to withstand masticatory forces in dental restorations.

Wear resistance: These resins also offer good wear resistance, which is crucial to maintaining the integrity of the restoration over time.

Color stability: Hybrid Light Cure Composite Medental resins usually maintain their original color and do not fade easily, which is important for dental aesthetics.

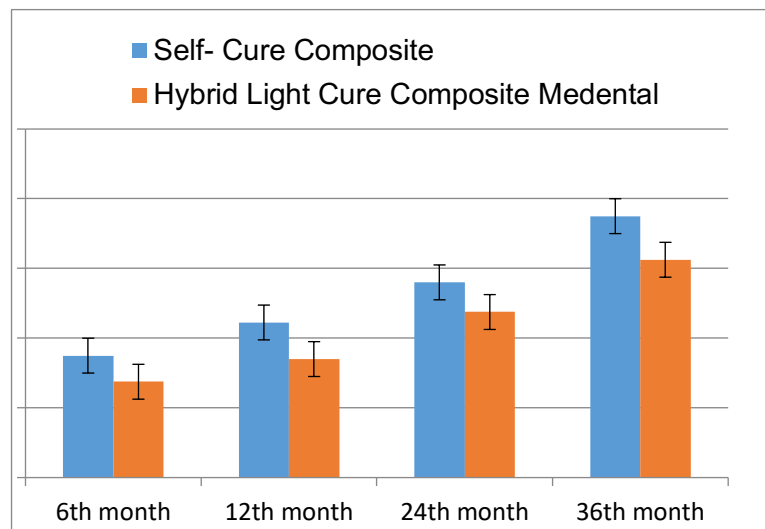
Clinical Management: Handling during placement and subsequent polishing are important aspects of the clinical performance of these resins. Its ability to adhere to tooth structure and ease of use are key considerations.



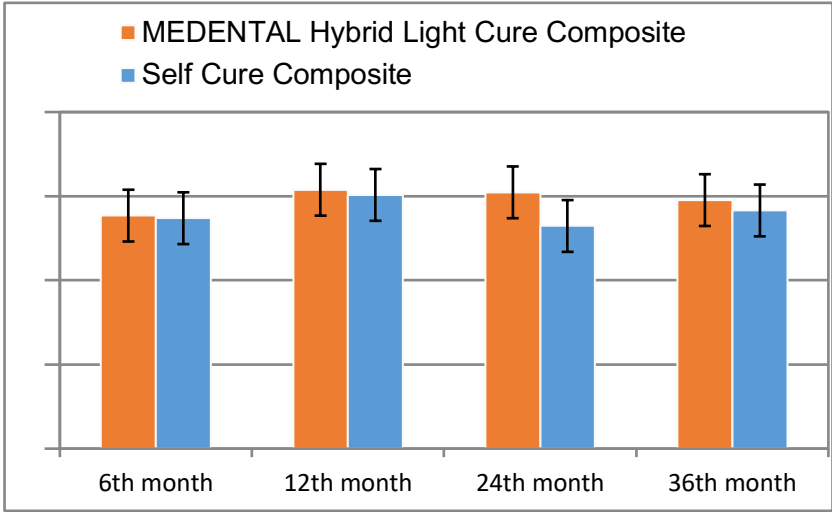
Product performance used in other dental applications:

A clinical evaluation carried out on the Hybrid light cure composite resin from Medental Clinical Evaluation Report revealed that it can be useful and almost similar in applications in which. The evaluation was carried out with a period of 36 months of monitoring by 3 independent dentists. The results obtained are shown in the following graph where the differences between the self-curing resin and the Hybrid Light Cure Composite Medental resin are shown in their permanence, sensitivity and color change at 6, 12, 24 and 36 months after placement. No statistically significant differences were found between both, which demonstrates the effectiveness of the Hybrid Light Cure as a good restorative material.

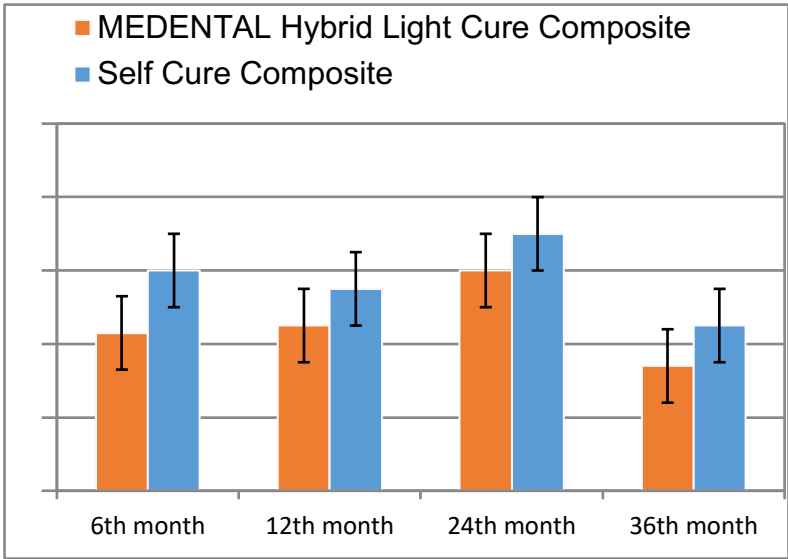
This graph represents the **Color Matching Capability** of the Hybrid Light Cure Composite Medental compared to a Self Cure Composite.



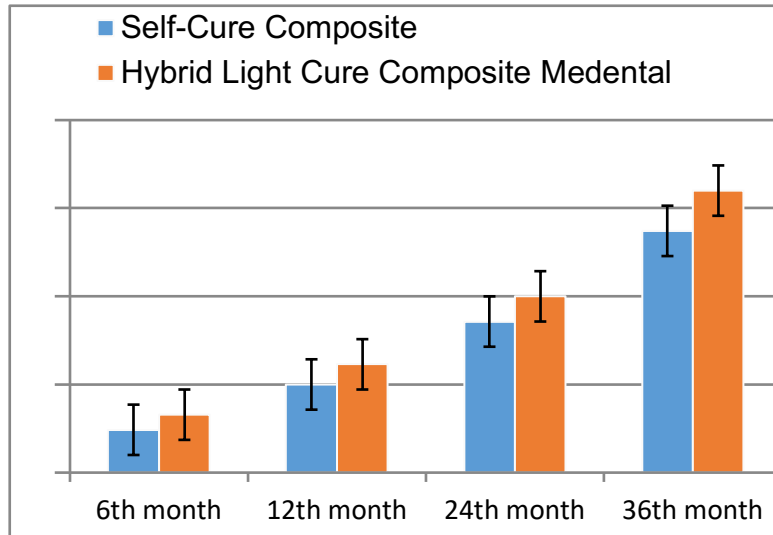
This graph represents the **Marginal Integrity** of the Hybrid Light Cure Composite Medental compared to a Self Cure Composite Medental.



This graph represents the **Superficial texture** of the Hybrid Light Cure Composite Medental compared to a Self Cure Composite Medental.



This graph represents the **Finish of Obturation** of the Hybrid Light Cure Composite Medental compared to a Self Cure Composite Medental.



The data obtained in this study of the Hybrid Light Cure Composite Medental resin used as a restorative material show its overall efficacy to date to be 36 months with revisions every 6, 12, 24 and 36 months. It is shown that there is no operative sensitivity compared to light-curing resins.

In relation to color change, this does exist, however, there are no statistically significant differences in comparison with a light-curing resin, which is why its total application is recommended in anterior teeth following the protocol recommended by the manufacturer. A great advantage of using these Hybrid Light Cure Composite Medental resins is the fact that we are completely sure of their degree of cure and that we will not have to use a self-curing resin that takes time to harden and that must be prepared correctly in mixing and handling proportions of 2 reactive pastes: Base and Catalyst.