

After-Sales Service

Graphenano Dental has a technical support department that provides comprehensive customer service, including:

- Training
- Treatment advice
- Design review
- Technical support

G-BLOCK

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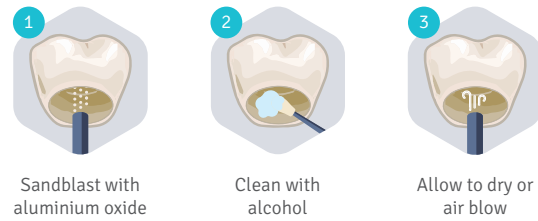
Graphenano Group:



G-BLOCK Work process

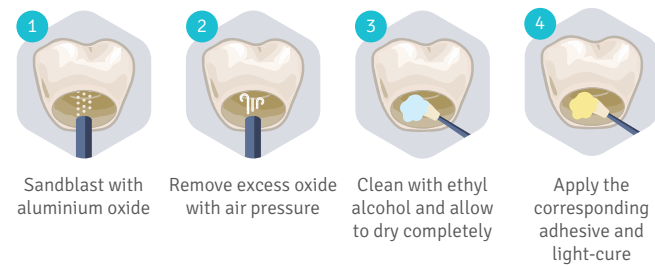
Laboratory Process

Cleaning the graphene crown



Clinical process

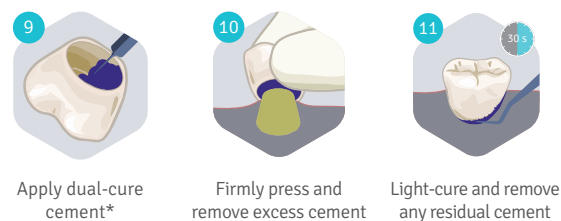
Preparation of the G-BLOCK structure



Tooth preparation



Cementation of the crown



*It's recommended to use dual-cure resin-based cements and read the specific material instruction sheet that may be required for cementation as each material might need a specific protocol.

G-BLOCK

Biopolymer block
graphene reinforced
for CAD/CAM milling.

For definitive prostheses.



Graphenano
DENTAL



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The Graphene

Graphene is a single graphite layer, consisting of a hexagonally arranged, sp² bonded, stable two-dimensional allotrope of carbon with a plethora of unique properties (Geim and Novoselov, 2004).

Amongst its main properties are great thermal and electrical conductivity, high traction resistance, small density and low coefficient of thermal expansion and biological properties. Due to these properties, graphene has become an excellent material with big potential for the improvement of industrial applications.

The incorporation of graphene into polymers is an innovating strategy to improve its mechanical properties. The increase on the elastic modulus as well as the toughness reduce the appearance of cracks and breaks. The low density of graphene in addition to the excellent mechanical properties lead to the creation of lighthard polymers.

Therefore, graphene is an ideal candidate to improve the performance of thermal-curing acrylic resins for dental use, not only to create polymers with high mechanical resistance, but also polymers with low water absorption capacity, with minimum residual monomers and biocompatible.

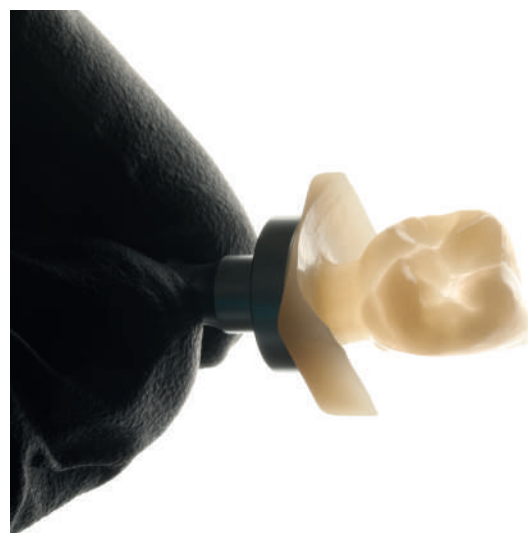
Comparison table of dental solutions

Types of prostheses / material	PMMA	Metal	Zirconium	Lithium Disilicate	Resin + Graphene
Prosthesis on natural teeth	Crowns				
	Bridges *Max 2 pontics	-			
Prosthesis on implants	Crowns		-		
	Bridges *Max 2 pontics		-		
Prosthesis on natural teeth	Settings		-		
Prosthesis on natural teeth	Veneers	-	-		

What is G-BLOCK?

G-BLOCK is a polymer based on polymethyl methacrylate (PMMA) doped with graphene (an allotrope of carbon), suitable for the manufacture of dental prostheses using CAD/CAM technology.

G-BLOCK intended to be used for the fabrication of permanent and temporary restorations such as prostheses, crowns, bridges, inlays, onlays and veneers.



G-BLOCK

G-BLOCK is a compact block made of graphene-doped polymer available in two sizes 14 and 40 mm.

It can be found in the following colours: BL2, A1, A2, and A3 (according to G-CAM Shade Guide, approximate to the VITA® guide).



Properties

G-BLOCK is a graphene-reinforced biopolymer, specifically designed for permanent dental structures, available in various chromatic colours providing a natural aesthetic.

G-BLOCK blocks introduce new properties to dentistry, meeting the ideal characteristics for prosthetic work using chairside and CAD/CAM technology, maximizing efficiency in work time and costs.

Material properties

Elastic modulus ⁽¹⁾ : 3200 ± 7% MPa	Bending strength ⁽¹⁾ : 140 ± 7% MPa	Surface hardness ⁽²⁾ : 88 Shore D ⁽²⁾ 19,5 KHN ⁽³⁾
Compressive strenght ⁽⁴⁾ : 155 ± 5 MPa	Solubility ⁽¹⁾ : 0,5 µg/mm ³	Water absorption ⁽¹⁾ : 4 µg/mm ³
Residual monomer ⁽¹⁾ : <0,004 %		

⁽¹⁾ UNE-EN ISO 20795-1: 2013 | ⁽²⁾ ISO 48-4:2018 | ⁽³⁾ ASTM E384
⁽⁴⁾ ISO 5833:2002

Technical Features

- G-BLOCK exhibits a higher modulus and yield strength than conventional resins. These characteristics ensure that the stresses generated during biting and chewing do not cause permanent deformations.
- G-BLOCK offers high resistance to deformation and stress limits, thus preventing the formation of cracks and fractures.
- G-BLOCK has a low density, making the prosthesis lightweight.
- G-BLOCK is harder compared to other acrylic resins used in dentistry.
- G-BLOCK has an appearance similar to natural dentition.
- G-BLOCK maintains colour stability and covers a wide chromatic range, resembling natural dentition.
- G-BLOCK is chemically inert.
- The water absorption of G-BLOCK is 4 µg/mm³, and solubility is 0.5 µg/mm². The release of residual monomer is minimal, with a percentage of 0.004% residual monomer.

Thanks to these physical properties, G-BLOCK offers a long-lasting and safe treatment.