

GC Initial LiSi Blocks with G-CEM ONE (GC America)

Introduction

Speed, efficiency, durability, and ease of use with high-quality esthetics are all requirements that we have when creating a system of treatment for our patients. We have found the use of **GC Initial® LiSi** lithium disilicate blocks with **G-CEM ONE** self-adhesive resin cement and the use of the **Adhesive Enhancing Primer** provides us with these desired characteristics. When used together, with proper cleaning and the **G-Multi PRIMER**, reliable restorations can be created and predictably seated even in areas where ideal retention is compromised.



Description

GC Initial® LiSi blocks involve fully crystallized High-Density Micronization lithium disilicate for their blocks that allow for a restoration to be milled in 8-14 minutes in our CAD/CAM mill with high flexural strength without the need to fire the restoration. This creates a saving of 20-30 minutes in the treatment process when compared to other milling and firing procedures. This provides the patients with an additional "Wow!" experience as they are already impressed by the ever-improving CAD/CAM systems. The restoration can then be polished, chemically treated, and ready to seat in as soon as 3-4 minutes after the milling is complete. In areas where we are limited with proper mechanically retentive preparations, we have used the AEP (Adhesive Enhancing Primer) to create faster curing of the self-adhesive cement to obtain an optimal bond.



Clinical Procedures, Results, and Cases

Whether treating teeth for the initial time or replacing restorations that have failed, our office's protocol is to utilize a caries indicator to ensure no caries remain once the tooth has been prepared and any failing restorations have been removed. This helps us establish confidence that bonding protocols are performed onto a stable surface. Build-ups provide as ideal a foundational as possible, with proper reduction and rounded edges. The proper preparation design is easier on scanners and mills, resulting in better restorations. The **GC Initial® LiSi** block is indicated for full coverage crowns, veneers, inlays, and onlays so one can feel confident that this material can be used almost anywhere.

Once the scan and milling processes are complete, the restoration is tried-in, and a "pre-cementation" radiograph is obtained to ensure complete marginal seal for a quality outcome. Finally, the occlusal contacts and excursions are tested and adjusted as necessary for proper form and function, as well as to avoid future occlusion complications.

With a properly fitting and comfortable restoration fabricated, it is then polished and/or stained. In our office, we use the Dialite polishing system from Brasseler followed by a **Goats Wheel** to reduce the surface roughness. The intaglio surface of the **LiSi** restoration is then treated with HF acid (9.5%) for 20 seconds followed by the application of **G-Multi PRIMER**, which contains silane to further enhance bonding with the **G-CEM ONE** cement. Sandblasting this material is not indicated as microfractures may occur.



Case One: Before: fractured teeth #7 and 8 DILF



Case One: After: teeth #7 and 8 restored with LiSi blocks and cemented using the G-CEM ONE cementation process.

Case Two: Milled and polished LiSi Block crown is cemented using G-CEM ONE cement. Excess cement (right) is dislodged from the buccal and lingual of the restoration using light pressure, and removed with a cotton forcep.



The tooth is then isolated and selectively etched with phosphoric acid (37%) for 15 seconds on any existing enamel, followed by thoroughly rinsing and lightly drying the entire tooth surface. The **Adhesive Enhancing Primer (AEP)** can be used on the tooth surface in areas with little to no retention, greatly increasing the bonding success of the restoration. This material can even be used in areas with saliva contamination, which has allowed us to seat restorations without rubber dam isolation. The **AEP** is applied to the tooth and allowed to settle for 10 seconds before thoroughly drying for 5 seconds.

The use of the **AEP** will accelerate the self-cure of the cement. **G-CEM ONE** is then placed around the margin and within the intaglio of the restoration, followed by immediate seating. An excess of cement placement into the intaglio surface of the restoration, with this very thin (5 µm) material, is ideal to achieve a "bleed out" of the cement upon seating. There is no need to worry about a separation gap at the margin with **G-CEM ONE**, and placing excess into the intaglio surface ensures sufficient material under the crown to create a proper bonding seal without internal voids. With the excess cement still present, a 1-second tack light cure is performed buccal and lingual, while moderate pressure is simultaneously applied to the restoration. Interproximal contacts are quickly cleaned out with floss that is pulled out horizontally from the contact to provide predictable contact cleaning without dislodging the restoration. An explorer is then used, with light pressure to remove the excess cement from the buccal and lingual aspects of the restoration in one piece. This allows for easy removal of the excess with cotton forceps, preventing any tenderness to be experienced by the patient (Case2). A full curing of the material can then be accomplished with a curing light, or the material can be allowed to self-cure for 4 minutes with continued pressure being applied. The process of a 4-minute set-up time is still followed in our office, even with curing, to ensure the material cures in all areas, even those that may not have been adequately polymerized by the curing light. The occlusal contacts and excursions are confirmed after cementation. To this point, no post-op sensitivity has been reported in our office utilizing this protocol, and the blend of material with the tooth is impressive. Examples of the use of these materials in our office include Case 1, which shows a before and after of a fractured #7 DILF and #8 DILF that have been restored with LiSi blocks, with simple polishing utilizing the Dialite system, and cementation using **G-CEM ONE**. Case 3 required the removal of existing PFM restorations and placement of stained **LiSi** full coverage crowns for #7-10, also with the **G-CEM ONE** process.



Case Three: Before: radiograph of teeth #7-10 showing existing PFM restorations.



Case Three: After: radiograph showing placement of LiSi block full-coverage crowns for #7-10 cemented with the G-CEM ONE process.

Discussion:

Patients are expecting reliability and quality esthetics in their restorations, and we as dentists are expecting long-lasting results in a timely manner. All of these desires are achieved when using these GC products. We love to hear patients use phrases like "We are done already?!" while also saying "Wow! These look great!" The advancements in these dental materials are allowing dentists to have the safety net of non-technique-sensitive protocols, which make our working days less stressful, more profitable, and more predictable.

Clinical photos: Cases 4-7 (right) all show radiographic results of simple to complex cases that involve the use of the **GC LiSi** blocks with **G-CEM ONE** and AEP as our bonding process. We have been extremely satisfied with these materials and the resulting outcomes.



Case Four: Tooth #19



Case Five: Tooth #7



Case Six: Teeth #13, 14, 15, 18, and 19



Case Seven: Tooth #19