

## CLINICIANS GUIDE TO GLASS IONOMER PRODUCTS 2024

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*Note: I have included some, but not all, of the products by 3M ESPE and GC America. I have little clinical research with the Riva products by Southern Dental Industries, the Ionofil products by VOCO, or the GlasIonomer line by Shofu. I have had limited clinical experience with them. They may be excellent products.*

### **General Principles for all GICs:**

1. Bond to tooth without any bonding agent
2. Fluoride reservoir: Conventional more fluoride than RMGIC
3. Good dentin replacement – Coefficient of thermal expansion like tooth
4. Follow directions for that particular product
5. Stickier than composite so consider matrix, use matrix ASAP when viscosity is low.  
Do not try to sculpt, overfill and trim/contour after set.
6. Use conditioner (usually polyacrylic acid) NOT phosphoric acid etch
7. Hydrophilic water-based product - tooth moist for best adhesion
8. Better finished with diamonds than carbides
9. Easier to ditch than composites (fatter burs, possibly slow speed)
10. Avoid acidic fluorides
11. Adhesive strength > Cohesive strength

### **I. Glass Ionomer Restoratives**

1. **Conventional** (no resin, not light cured)
  - a. Ketac Fil Plus Aplicap - 3M ESPE
  - b. Ketac Silver Aplicap - 3M ESPE
  - c. Fuji Triage (capsule) - GC America
2. **Conventional Fast Set** (sometimes called posterior)
  - a. Fuji EQUIA Forte (capsule) - GC America
  - b. Fuji EQUIA Forte HT (capsule September 2019 release)
  - c. Ketac-Molar Quick Aplicap – 3M ESP
  - d. SMART Advantage Restorative – Elevate Oral Care

### **Clinical Tips for Conventional GIC:**

1. Not light cured – acid-base reaction and self-cure
2. No bevel – better if bulk at margins
3. Finish under water and seal (coat) to protect during extended cure
4. OK to bulk fill – no polymerization shrinkage
5. In general, more opaque than RMGICs

## **II. Restorative Resin Modified Glass Ionomer Cements (RMGIC)**

1. Fuji Automix LC
2. Fuji Filling LC (paste - paste) - GC America
3. Fuji II LC (capsule) - GC America
4. Photac-Fil Quick (capsule) - 3M ESPE
5. Vitremer (powder - liquid) - 3M ESPE
6. Ketac Nano (paste - paste) - 3M ESPE - requires light cured primer

### **Clinical Tips for RMGICs:**

1. Usually light cured
2. Polymerization shrinkage
3. Place in 2 mm increments
4. Short bevel OK
5. More tolerant to dry finishing
6. Dark cure OK (not sure for Ketac Nano)
7. Consider conditioning even if company says not mandatory

## **III. GIC Liners**

1. Fuji LINING LC (paste – paste) - GC America
2. Fuji LINING LC (power - liquid) - GC America
3. Vitrebond (powder - liquid) - 3M ESPE
4. Vitrebond Plus (paste – paste) - 3M ESPE

### **Sandwich Technique: GIC with composite on top (open or closed)**

1. Using conventional GIC and total etch bonding technique:  
Place GIC and let cure, trim back if needed, etch tooth and GIC for 15 seconds, rinse, apply bonding agents to GIC and tooth per regular bonding instructions.
2. Using RMGIC and total etch bonding technique:  
Place RMGIC and light cure, etch only tooth (RMGIC has air inhibited layer), rinse, apply bonding agents to RMGIC and tooth per regular bonding instructions.

## **IV. Luting Glass Ionomer Cements**

1. Conventional GIC luting agents
  - a. Ketac CEM (Aplicap and Maxicap) - 3M ESPE
  - b. Fuji I - GC America
2. RMGIC luting agents
  - a. RelyX Luting Plus (paste - paste) - 3M ESPE
  - b. RelyX Luting Cement (powder/liquid for hand spatulation) – 3M ESPE
  - c. Fuji PLUS (capsule, also available in powder/liquid for hand spatulation) - GC America
  - d. Fuji CEM Evolve (automix paste - paste) – GC America