

# Traditional Vs Resin Cements for Indirect Restorations

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## Introduction:

Indirect restorations, such as inlays, onlays, crowns, and bridges, require a reliable cementation method to ensure long-term success. Aim of this literature is to compare various cementation options that are available, advantages and disadvantages of different materials using conventional cementation or adhesive cementation. Also this discusses the rationale in selecting the choice and techniques in different clinical situations. In conclusion, both traditional and resin cements have their advantages and disadvantages for indirect restoration cementation. The choice of cement type depends on the clinical situation and the preferences of the clinician. Traditional cements may be preferred in situations where high bond strength is not required or where a dry environment can be maintained, while resin cements may be preferred when superior bonding is desired or when the restoration material is not compatible with traditional cements. Ultimately, proper technique and selection of the appropriate cement are essential for ensuring long-term success of indirect restorations

Table 1. Suggested uses of definitive luting agents

Type of restoration	Resin cements				Glass-ionomer cement	Resin-modified glass-ionomer cement	Zinc phosphate cement	Zinc polycarboxylate cement
	3-Step total etch bond, resin	One-Step etch-bond, resin	Self-adhesive	Dual-affinity				
All-metal crowns/onlay			✓		✓	✓	✓	✓
Metal-ceramic crown		✓	✓		✓	✓	✓	
All-ceramic (silica) crown			✓		✓	✓	✓	
Alumina or zirconium crown			✓		✓	✓	✓	
Ceramic inlays/onlays	✓		✓			✓	✓	
Veneers	✓		✓			✓	✓	
FPD, short span			✓			✓	✓	
FPD, long span			✓			✓	✓	
Cast or pre-fab metal post	✓		✓	✓		✓	✓	
Non-metal post	✓	✓	✓			✓	✓	
Poor retentive crown			✓			✓	✓	
Cantilever prostheses			✓	✓		✓	✓	
Resin-bonded FPDs	✓	✓	✓	✓		✓	✓	
Provisional cement precautions*			✓	✓		✓	✓	

\*Eugenol containing provisional cements may decrease bonding.

Clinical Situation	CONVENTIONAL CEMENT	SELF-ADHESIVE RESIN CEMENT	FULL-ADHESIVE RESIN CEMENT
Non-retentive minimal-invasive preparation	CONTRAINDICATED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Full-coverage preparation with compromised retention	CONTRAINDICATED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Full-coverage preparation with optimal retention form (min. 4 mm and 6-12 degrees)	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Translucent materials or highly-demanding esthetics	CONTRAINDICATED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Glass-ceramic, Leucite-ceramic, Hybrid-ceramic, Composite	CONTRAINDICATED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Lithium-disilicate and Zirconia	NOT RECOMMENDED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Metal-based restorations	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED
Inability to achieve dry working environment (e.g. subgingival margins)	INDICATED / RECOMMENDED	INDICATED / RECOMMENDED	NOT RECOMMENDED

INDICATED / RECOMMENDED NOT RECOMMENDED CONTRAINDICATED

## OVERVIEW:

With variations in nomenclature, there are three main classifications of cements that are widely used and accepted in clinical practice: luting, self-adhesive resin and adhesive resin cements. Each has not only specific indications but also specific protocols to ensure success. It should also be stressed that no specific cement satisfies all the requirements of every clinical situation; therefore, product knowledge is imperative.

### 1. Luting Cements

A luting cement merely creates a seal between the restoration and the tooth. There is only a physical connection, no chemical connection (or bond)

### 2. Resin modified glass ionomer cements

Traditional glass ionomer (GI) cements have been utilized for more than 40 years; however, in the early 1990s, resin modified glass ionomer (RMGI) cements were introduced. RMGI cements represent an improvement over traditional GI cements with the addition of methacrylate monomers. They have an improved flexural strength, are biocompatible, and although they're classified as luting cements, they provide a greater bond than traditional GI cements. RMGI cements are attractive to clinicians because they release fluoride ions, don't require additional bonding adhesives and have little or no postoperative sensitivity. They are indicated for multiple types of restorations, though reports indicate that leucite and feldspathic restorations have an incidence of fracture if luted with RMGI. It is imperative that proper retention and resistance form be followed for successful cementation with RMGI cements.

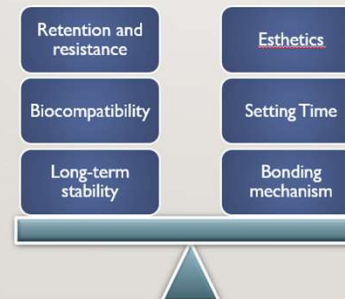
### 3. Resin Cements

#### 4. Adhesive resin cement

In addition, dependent upon the type of adhesive, a silane coupling agent may be necessary for bonding to the restoration. Multiple shades are available, as well as corresponding try-in pastes (dependent upon the manufacturer).

#### 5. Self-adhesive resin cements

## FACTORS DETERMINING CHOICE OF CEMENTS



## CONCLUSION

Delivery of an indirect restoration involves selection of a material to seal and hold the restoration in place for the time required for service. Many factors besides the luting agent (preparation height, taper, oral hygiene, habits, etc.) determine a restoration's longevity but none come into play as quickly as the physical qualities (strength, adhesion, solubility, etc.) of the luting agent. A few materials discussed above fulfill most of the basic requirements of either a definitive or provisional luting agent yet each has unique shortcomings that may prevent their universal usage. The busy general practitioner need not (and cannot) know every minute detail of all the materials discussed above but must have sufficient knowledge to help choose an appropriate luting agent for each unique clinical situation.