Direct Anterior Composites

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What Are They

Composites are direct restorative materials that are tooth-colored and provide good esthetics. It is one of the most common filling that can be used in either direct or indirect technique. Composite resins are generally classified by the type of filler used (dispersed phase), since most employ similar resin matrices. Fillers are essentially of two types: large particles of glass or quartz (macrofiller) and small particles of silica (microfiller).

Based on the relative composition of the fillers, composites can be of different types that are marketed by manufacturers in different names.

1. Macron (10 µm): Alert; Pyramid; Surefil; Solitaire 2
2. Micron (5 µm): Bisfil; Clearfil AP-X; Escuit; Filtek: Z100, Z250, P60; Tetric-Ceram
3. Submicron (1 µm): Charisma; Herculite; Synergy; Esthex
4. Agglomerated microfill (0.1 µm): Visio-Dispers; Heliomolar Flow, HB; Palfique Estelite
5. Microfill (0.04 µm): Durafill; Filtek A110; Matrixx AM, Renamel Microfill

No single material has yet proven optimal for all restorations. Using different composites together can provide optimal success. An enormous number of variables determine composite longevity. Nevertheless, the most critical variable is placement technique and skill.

Where Are They Needed

1. Classes I, II, III, IV, V and VI restorations
2. Foundations or core buildups
3. Sealants and conservative composite restorations (preventive resin restorations)
4. Esthetic enhancement procedures:
   - Partial veneers
   - Full veneers
   - Tooth contour modifications
   - Diastema closures
5. Cements (for indirect restorations)
6. Temporary restorations
7. Periodontal splinting

Where Not To Be Used

- Lack of isolation
- Ares of heavy occlusion
- Lack of operator skill

Composite Selection

A clinician must consider a number of factors in selecting a composite resin restorative material. A resin's composition in terms of filler loading and particle size determines its ability to provide any of three functions: support, form and contour, and surface finish

Selecting An Anterior Composite Restorative

No one material can suffice for all anterior restorations. If it is necessary to choose a single restorative for all uses, the best choice is a minifill with particles under 1 µm.

Class III restorations: Submicron composites are recommended for small preparations because they are radiopaque, have a good finish, are durable to occlusal forces, and have a favorable thermal coefficient of expansion that helps maintain a good marginal seal.

Agglomerated and condensed microfills can also work well in small areas.

Traditional microfills are not a good choice because they are usually radiolucent.

Class V restorations : In small restorations involving dentin, and for patients highly susceptible to caries, a modified resin glass-ionomer restorative is a good choice.

In large restorations, a submicron composite is recommended.

If the patient smokes or drinks a lot of coffee, placing a flowable microfill veneer over a submicron composite reduces surface staining.

In small nonstress-bearing restorations entirely in enamel, traditional microfills have proven successful.

Class IV restorations: Small Class IV carious lesions are best treated with a micron or submicron hybrid.

Large restorations involving an occlusal contact point are best treated with a heavy filled material. To improve esthetics, these can be coated with a micron or submicron hybrid.

Where esthetics is a primary concern, coating the surface with a thin microfilled veneer is advisable.

Advantages

- Highly esthetic tooth-colored fillings
- Adhesively bond to the tooth
- Require less removal of tooth structure (conservative)
- Can strengthen the tooth
- Can be completed in a single appointment
- Less complex when preparing the tooth
- Insulative, having low thermal conductivity
- Less expensive than indirect fillings
- Repairable

Disadvantages

- More difficult for dentist to place (technique sensitive)
- Require proper knowledge and shade selection
- Can fracture if not appropriately restored
- It shows greater occlusal wear therefore

not suitable in areas of high occlusal stress
- More expensive than direct fillings (amalgam)
- Polymerization shrinkage that might lead to marginal discrepancy
- Have a higher linear coefficient of thermal expansion, resulting in potential marginal percolation

Conclusion

Composites are tooth-colored fillings for use in teeth when a high degree of esthetics is desired. They are direct restorative materials and can be done in a single appointment. When done properly, they can provide years of excellent service and hence can be considered as a wonder material for dental clinician in day-to-day practice.

CASE-I

CASE-II

CASE-III