Dental Cement

Few materials in dentistry are used as frequently as dental cements.

No single cement is universally acceptable and fulfills all applications.
Uses of Dental Cements

Pulpal protection
- Cavity varnish
  - Low-strength base/liner

Luting, bonding, cementation

Restorations

Surgical dressings
Pulpal Protection

Cavity varnish

Low-strength base/liner

High-strength base/liner
Pulpal Protection

Buildup

   Mechanical support

Reinforces remaining tooth structure
Luting, Bonding, Cementation

Good wettablility

Thin film thickness

Low viscosity

Uses
  Permanent
  Temporary
Orthodontic Bands and Brackets

Retained for months, even years

Cements with fluoride often used
Restorations

Permanent

Intermediate

Temporary/provisional
Surgical Dressings

Provide protection and support for the surgical site

Dispensed
Chemical-cured
Light-cured
Properties of Dental Cements

Strength

Solubility

Viscosity and film thickness
Properties of Dental Cements

Biocompatibility and anticariogenic properties

Retention and adhesion

Esthetics

Radiopacity
Manipulation

Storage

Mixing

Working and setting times

Self-etch and total-etch

Light-curing, self-curing/dual-curing
Manipulation

Loading the restoration

Technique
Manipulation (Cont.)

Removal of excess cement
  Must be removed
  Consistency

Cement-associated peri-implant disease

Cleanup, disinfection, and sterilization

Considerations during instrumentation
Dental Cements

Zinc oxide eugenol

Composition
- Principle ingredient: Zinc oxide
- Eugenol

Properties
- pH of 7

Manipulation
Dental Cements (Cont.)

Zinc phosphate

Composition

Principle ingredient: Zinc oxide
Fluoride
Phosphoric acid
Water

Properties

pH of 4.2

Manipulation
Dental Cements (Cont.)

Zinc polycarboxylate

Composition
  Principle ingredient: Zinc oxide
  Polyacrylic acid

Properties

Manipulation
Dental Cements (Cont.)

Glass ionomer cements

Composition

Powder: Aluminum fluorosilicate glass

Liquid: Polyacrylic acid copolymer in water

Properties

Manipulation
Hybrid glass ionomer cements, also referred to as *resin-modified glass ionomer cements (RMGIC)*

**Composition**
- Aluminum fluorosilicate glass modified with resin
- Polyacrylic acid copolymer in water

**Manipulation**
Dental Cements (Cont.)

Resin-based cements (adhesive and self-adhesive resin)

- Composition
- Properties
- Manipulation