

Temporary filling materials

These information can be found in the book Craig's restorative dental materials.

Zinc phosphate cement

(Zinkoxid phosphate cement)

Powder:

Zinc oxide (magnesium oxide, silicon dioxide, bismuth trioxide).

Liquid:

Orthophosphoric acid (buffered by adding aluminium and sometimes zinc), water (usually 1/3 of water).

When excess of zinc phosphate cement is brought into contact with the liquid the surface of alkaline powder is dissolved by the acid liquid, resulting in an exothermic reaction.

The set zinc phosphate cement is a hydrated amorphous network of zinc phosphate that surrounds incompletely dissolved particles of zinc oxide.

Properties

Two consistencies are in general use:

For luting – creamy consistency

For base – thick consistency like dough

Initial acidity during setting. It may cause a pulpal response when there is only thin layer of dentin between the cement and the pulp. Therefore zinc phosphate cement is not recommended in deep cavities. It can be dissolved in saliva therefore.

The closure of the cavity is good, hermetic.

Purpose

It is a temporary filling material that can be used also as base and luting material.

The liquid is hygroscopic as well as the powder.

Mixing on glass pad – the rough side using spatula – the powder is added to the liquid and consistency must be homogenous.

Zinc polyacrylate cement (zinc polycarboxylate, zinc oxide polycarboxylate)

Powder

Zinc oxide, magnesium oxide.

Liquid

Water solution of polyacrylic acid.

Principle of setting:

The set cement is a zinc polyacrylate ionic gel matrix that unites unreacted zinc particles.

The acidity is lower in comparison to zinc phosphate cement. It is more difficult for handling and mechanical properties are worse. The closure of cavity is good.

Purpose:

It is a temporary filling material that can be used also as base and luting material.

Zinkoxid eugenol cement

Powder:

Zinc oxide, white resin, zinc stearate, zinc acetate

Liquid:

Eugenol, olive oil.

Principle of setting:

A chelation reaction in which amorphous, zinc eugenolate is formed.

During mixing it is important to bring as much as possible powder into the liquid. The consistency is like dough.

Purpose

Temporary cementation for provisional crowns and bridges, provisional restorations, bases, endodontic sealers.

The closure of cavity is good. Eugenol disturbs setting of composite filling materials – zinc oxide eugenol cement is not recommended as temporary filling before placement of composites.

Guttapercha

Transpolyisopren, waxes, zinc oxide.

Thermoplastic material, non toxic, non hermetic.

Purpose.

Temporary filling esp. before making inlays. Guttapercha points for endodontology.

Zinc oxid sulphate cement

Powder:

Zinc oxide, zinc sulphate.

Liquid: distilled water.

Principle of setting

Hydration of components of a powder.

Properties:

Non toxic material, good retention in the cavity.

Purpose:

Temporary filling material (1 – 2 weeks)

Nowadays this cement has been replaced with one **component temporary filling materials** ready to use. These material usually consist of gypsum and resin and water accelerate their setting.