

## Dental Materials Fact Sheet

Dental Material	General Description	Principal Uses	Cost	Durability	Appearance	Patient Tolerance	Other Advantages	Other Disadvantages
Amalgam	Mixture of silver-tin-copper alloy powder and liquid mercury	Filling material and replacement	Low	Good to excellent; unless in large fillings: tooth structure may weaken and crack	Poor. Has a silver or blackened silver color	Tolerated. May experience temperature sensitivity	Minimal-to-no shrinkage, resists leakage	Requires removal of some healthy tooth, contact with other metals can cause occasional electrical flow
Composite Resin	Mixture of powdered glass and plastic resin	Fillings, inlays, veneers, crowns or to repair broken teeth	Moderate	Fair to Good if filling is small	Good. Looks like tooth but tends to stain	Moderate tooth sensitivity	Resists breaking or further decay, easy to find	May wear faster than dental enamel, may leak over time
Porcelain (ceramic)	Glass-like material	Inlays, veneers, crowns, and fixed bridges	High	Good, but may cause wear on opposing teeth	Good, Tooth colored	Good resistance, little leakage	Very little tooth removal	High cost, more than one visit
Glass Ionomer Cement	Mixture of glass and organic acid	Small fillings, cementing metal or porcelain crowns, liners	Moderate-high	Reasonably good,	Good, Tooth colored	May irritate sensitive teeth, very limited use	Resists leakage, releases fluoride	Tends to crack over time and can dislodge, as it ages, it becomes rough
Resin Ionomer Cement	Glass and resin polymer and organic acid	Small fillings, cementing metal or porcelain metal crowns, liners	Moderate-high	Holds up better than glass ionomers, but not composites	Good, tooth colored	Low incidence of sensitivity, low leakage	Releases fluoride, non-biting surfaces	Wears faster than composites, limited use, not used for biting surfaces
Porcelain Fused to Metal	glass-like material that is enameled on top of metal shells	Crowns and fixed bridges	High	Excellent, due to metal substructure	Excellent, tooth colored	Does not cause tooth sensitivity	Resists leakage due to accurate fit	Higher cost, more tooth must be removed for metal substructure
Nickel or Cobalt-Chrome Alloys	Mixture of nickel and chromium	Crowns, fixed bridges, partial denture framework	High	Excellent, does not fracture under stress	Poor, not tooth colored, dark silver metal color	Good resistance, may irritate sensitive teeth	Does not corrode, resists leakage	High cost, abrasive to other teeth, higher wear to opposing teeth.
Gold Alloys	Mixture of gold, copper, and other metals	Crowns, fixed bridges & partial denture framework	High	Excellent, does not fracture under stress	Poor, alloy is yellow	Excellent resistance to further decay or leakage	Wears well, does not cause wear on opposing, no corrosion	May irritate sensitive teeth, high cost

***The durability of any dental restoration is influenced not only by the material it is made from but also by the dentist's technique when placing the restoration. Other factors include the supporting materials used in the procedure and the patient's cooperating during the procedure. The length of time a restoration will last is dependent upon your dental hygiene, home care, and diet and chewing habits. \*revised 10/14/2008\****

# **Dental Materials Fact Sheet**

## **What About the Safety of Filling Materials?**

Patient health and safety of dental treatments are the primary goals of California's dental professionals and the Dental Board of California. The purpose of this fact sheet is to provide you with information concerning the risks and benefits of all the dental materials used in the restoration (filling) of teeth.

The Dental Board of California is required by law\* to make this dental materials fact sheet available to every licensed dentist in the state of California. Your dentist, in turn, must provide this fact sheet to every new patient and all patients of record only once before beginning any dental filling procedure.

As the patient or parent/guardian, you are strongly encouraged to discuss with your dentist the facts presented concerning the filling materials being considered for your particular treatment.

\* *Business and Professions Code 1648.10-1648.20*

## **Allergic Reactions to Dental Materials**

Components in dental fillings may have side effects or cause allergic reactions, just like other materials we may come in contact with in our daily lives. The risks of such reactions are very low for all types of filling materials. Such reactions can be caused by specific components of the filling materials such as mercury, nickel, chromium, and/or beryllium alloys. Usually, an allergy will reveal itself as a skin rash and is easily reversed when the individual is not in contact with the material.

There are no documented cases of allergic reactions to composite resin, glass ionomer, resin ionomer, or porcelain. However, there have been rare allergic responses reported with dental amalgam, porcelain-fused to metal, gold alloys, and nickel or cobalt-chrome alloys.

If you suffer from allergies, discuss these potential problems with your dentist before a filling material is chosen.

## **Toxicity of Dental Materials**

### ***Dental Amalgam***

Mercury in its elemental form is on the State of California's Proposition 65 list of chemicals known to the state to cause reproductive toxicity. Mercury may harm the developing brain of a child or fetus.

Dental amalgam is created by mixing elemental mercury (43-54%) and an alloy powder (46-57%) composed mainly of silver, tin, and copper. This has caused discussion about the risks of mercury in dental amalgam. Such mercury is emitted in minute amounts as vapor. Some concerns have been raised regarding possible toxicity. Scientific research continues on the safety of dental amalgam. According to the Centers for Disease Control and Prevention, there is scant evidence that the health of the vast majority of people with amalgam is compromised.

The Food and Drug Administration (FDA) and other public health organizations have investigated the safety of amalgam used in dental fillings. The conclusion: no valid scientific evidence has shown that amalgams cause harm to patients with dental restorations, except in rare cases of allergy. The World Health Organization reached a similar conclusion stating, "Amalgam restorations are safe and cost effective."

A diversity of opinions exists regarding the safety of dental amalgams. Questions have been raised about its safety in pregnant women, children, and diabetics. However, scientific evidence and research literature in peer-reviewed scientific journals suggest that otherwise healthy women, children, and diabetics are not at an increased risk from dental amalgams in their mouths. The FDA places no restrictions on the use of dental amalgams.

### ***Composite Resin***

Some Composite Resins include Crystalline Silica, which is on the State of California's Proposition 65 list of chemicals known to the state to cause cancer.

**It is always a good idea to discuss any dental treatment thoroughly with Dr. Rick Tran and/or staff.**