# CURRENT DENTAL FILLING MATERIALS – PATIENT INFORMATION

This document is intended to provide patients with information regarding the material used to fill teeth. Two types of directly inserted (one-appointment) filling materials are currently available for fillings in the back of the mouth, **silver amalgam** and **tooth-coloured resin composite.** Each material has advantages and disadvantages which determine the indications for use in different mouth situations.

1. **Silver amalgam** is an alloy (mixture) of silver, copper, tin and mercury which has a long clinical history. Current alloys have undergone several decades of refinement to provide a stable, corrosion resistant and durable filling. It is the usual material of choice for larger back fillings, because of its proven record of providing fillings that are comfortable, long lasting and affordable, particularly in molar teeth.
2. **Silver amalgam** allows total adaptation to all of the prepared cavity, is carvable to an ideal shape and seals the tooth well. All clinical studies have shown that silver amalgam fillings are more durable and last longer than resin composite. This is an important issue as every time a filling is replaced, more tooth structure is lost and the tooth further weakened.
3. **Resin composite** is a tooth-coloured, filled plastic (methacrylate) that is hardened (polymerized) in the mouth. These materials have been used in smaller fillings in the front of the mouth for over 20 years. Only in recent years have products been developed that can withstand chewing forces in selected situations in back teeth.
4. **Resin composite** materials work best in small to moderate cavities, can bond to tooth structure and provide aesthetic fillings. They are, however, more difficult to work with than silver amalgam to achieve a successful filling, take more time and are more expensive than silver amalgam fillings. They are associated with greater incidence of post-treatment sensitivity and are not advised in large or complex fillings in molars. They may not be covered by dental insurance. Although the life of all fillings is dependent on good patient oral hygiene to prevent new decay at the edges, this is particularly so with the tooth-coloured composites.
5. Recent scientific evidence is showing that all direct filling materials are not as inert as was once thought. Minute amounts of mercury vapour are released from **silver amalgam** during chewing and tooth-brushing. Also, **resin composites** are quite complex plastics which allow release of minute amounts of monomers over a period of time. Both materials contain possible allergens but this has not been a significant problem with either material.
6. The safety of any material to be used in the mouth is of utmost concern to dentists. It is important to remember that millions of both types of fillings are placed annually in Canada. The fact that dentists, who are occupationally exposed on a daily basis to greater concentrations of the constituents of both materials, show good health and longevity in epidemiological studies, also attests to the safety of these materials in patients.

**Recent Health Canada Review of the Safety of Dental Amalgam**

In recent years the issue of mercury release from silver amalgam has received attention. Health Canada has completed (1996) a review of the safety of dental silver amalgam and have stated that **“current evidence does not indicate that dental amalgam is causing illness in the general population.”** Some recommendations have been made to modify the use of silver amalgam in a small number of vulnerable, medically compromised or hypersensitive patients.

Treatment planning at the Faculty of Dentistry will consequently involve **selection of the most appropriate materials with maximum benefit/prognosis for the particular clinical situation in your mouth.**  In some clinical situations there may be a choice of material.

**Other Alternative Filling Materials**

Alternatives to silver amalgam and resin composite are available but involve manufacture in the dental laboratory on a model of your tooth (indirect method). Such materials include **cast precious metal alloys** (gold, platinum or palladium), **ceramics**  (e.g. porcelain) or a **laboratory cured filled resin composite.**

Due to the time, precision and complexity involved these indirect fillings are much more expensive than direct silver amalgam or resin composite. They are used to provide a more ideal filling when a large amount of tooth structure has been lost.

Patients requesting tooth-coloured materials or alternatives to silver amalgam for large fillings will be provided with an alternative treatment plan using indirect restorative materials (crowns/caps, inlays or onlays) as necessary.

**If you have a strong material preference you should indicate this to your dentist. The patient must however understand and accept the limitations of alternative material selection. These may include: additional costs, longer treatment time, greater chance of failure and subsequently increased treatment requirements.**