

Comparing Impression Materials

Alginate impression materials are very hydrophilic and pour up well with gypsum stones. Cold water will retard the setting time and warm water will speed it up. Alginates should not be soaked in disinfectants. Ideally, the impression should be sprayed with the disinfectant, placed in 100% humidity and rinsed. Alginate material can distort easily and are less dimensionally accurate than other materials. They are not recommended for crown and bridge.

Hydrocolloid is the first elastomeric impression material. It contains borax to improve tear strength which also weakens gypsum die stone; so it also contains potassium sulfate for hardness. The impression process utilizes dispensing tubes for tray material and syringes for injection. Time involved is the special impression technique is costly and is not utilized as much today with new materials on the market.

Polysulfides are two-component systems, with a base and a catalyst material. These two materials when mixed produce a material with rubber-like properties which reduces deformation of the set impression. Polysulfides should always be used with a custom tray for support due to the low rigidity after setting. Impressions should be poured immediately due to poor long term dimensional stability. They pour moderately well with gypsum die stone.

Polyether comes in a base and catalyst paste which is relatively stiff after setting. In the 1980's a new generation of polyethers was introduced as a putty-syringe material further enhancing its use. Both the old and the new polyethers become stiffer after setting and are very difficult to remove from the mouth if left for an extended period. The next improvement brought 50% less stiffness, improved working time and double the tear strength but also brought slightly more shrinkage and more permanent deformation. They will absorb water and will distort if stored in water.

Polysiloxanes are more accurate and easier to work with than polysulfides. These impressions should be poured within an hour since shrinkage can occur. They are very hydrophobic making a dry field most important. If poured with gypsum die stones a surfactant should be used to improve surface detail. Can be disinfected with any solution.

Vinyl polysiloxanes are more accurate and stable than polysiloxanes and recover well from deformation. They have the lowest distortion of any impression material. Most PVS are hydrophobic with some hydrophilic versions being added which offer improved wettability. This version because they wet the tooth and die stone better seem to cause fewer retakes. They are easily disinfected with any disinfectant solution.