

Operative Dentistry: Mixing Zinc Oxide Eugenol (ZOE) Cement

Armamentarium

The items that we need to mix ZOE are the following:

- IRM mixing pad (which includes oil and impervious paper)
- Interproximal wedge
- Condenser
- Cleiod carver
- Burnisher
- Hollenbach carver
- Explorer
- Spatula (use the stiff side of the spatula, not the flexible side)
- Cotton pliers

IRM, which comes in two bottles, a liquid (eugenol) and a powder (zinc oxide), is the brand name for the zinc oxide eugenol (ZOE) cement that we use in the clinic.

Step 1: Placement of Wedge

Before placement of IRM on a class II cavity as a provisional restoration, a wedge is placed interdentially. Placement of a wedge prevents material from escaping cervically and prevents trauma to the gingiva. It also keeps the gingival embrasure open for movement of oral fluid and for the cleansing of the gingival embrasure.

Step 2: Dispensing and Mixing

Tape down the mixing pad to keep the mixing pad in place during the procedure. Before dispensing the materials, shake the powder and swirl the liquid bottle. Dispense 3 scoops powder and 4 drops of liquid (hold the bottle 90 degree to the mixing pad and let the fluid fall under its own weight).

To start the mixing, incorporate half of the powder into the liquid with a heavy folding motion and pressure. You should take your time and wet the powder particles with liquid. At this time add the remaining powder to the mix and continue to use a heavy folding motion to achieve a putty consistency. When the IRM reaches the desired consistency, bring the mix together and role it. You should be able to pick up the mix without deformation. This putty mix should give reasonable resistance to condensing. At this point divide the IRM mix into small pieces before placing it into the cavity.

Step 3: Placement of IRM

Pick up a piece of IRM and place it into the cavity using a condenser, cotton pliers, or explorer. If the mix sticks to the condenser, powder the condenser head with IRM powder to prevent the

instrument from sticking during condensation. Place IRM increments until the preparation is filled. At this point you can start the development of the occlusal anatomy. Use the condenser head and smear the IRM increments to the margin of the cavity.

Next, use a hollenback carver to smoothen the interproximal margins. Develop your occlusal anatomy and embrasure using a cleoid carver. For smoothening, clean up, and hardening of the provisional restoration, use a wet cotton pellet. Remove the wedge and smoothen gingivally, if needed. As you can see, there will be an open space in the buccal and lingual proximal embrasures. Ask the patient to keep the interproximal area clean by using a toothpick or proxy brush.