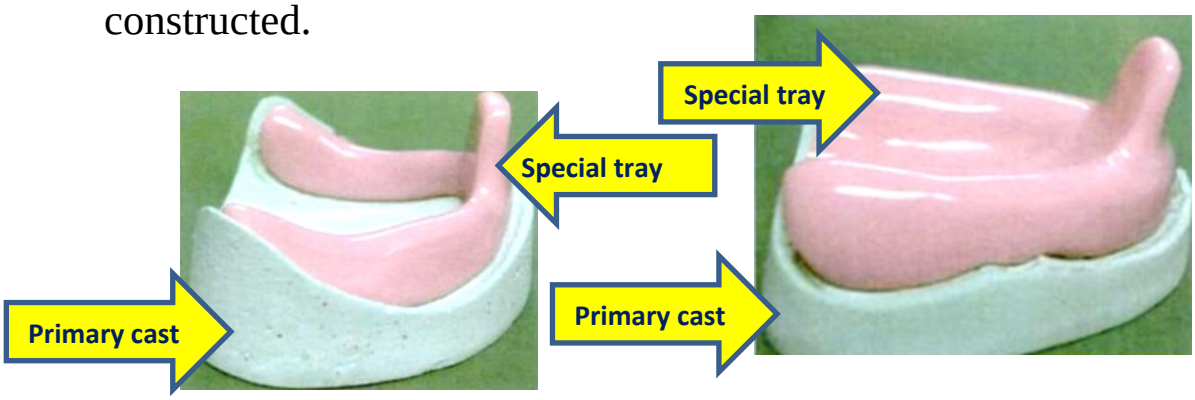
Special tray (Individual or custom tray)

An individualized impression tray made from a cast recovered from primary impression. It is used in making a final impression.

Special tray is constructed on the primary cast. As edentulous ridge show variations of shape and size (some have flattened ridges and other have bulky ridge), for this reason stock tray can fit the ridge only in an arbitrary manner, so special tray is constructed.



Advantages of special trays

1. Economy in impression material (used less impression material required in special tray).

2. More accurate impression.

3. Special tray provides even thickness of impression material. This minimizes tissue displacement and dimensional changes of impression material and produce impression with correct extension.

4. The work with special tray is easier and quicker than modifying stock tray to provide accurate impression.

5. Special tray is more accurately adapted to the oral vestibules, this helps in better retention of denture.

6. Special tray is less bulky than stock tray which is more comfortable for the patient.

Materials used for construction of special tray

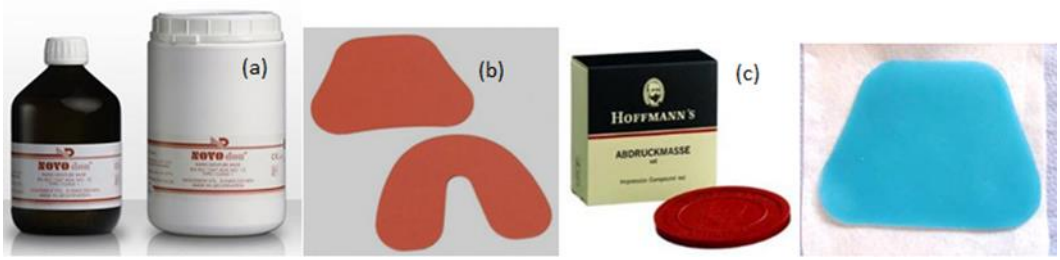
1. Cold cure acrylic resin or self-cure acrylic resin or auto-polymerizing acrylic resin (more common).

2. Visible light cured acrylic resin (VLC).

3. Shellac base plate.

4. Impression compound (some time).

5. Heat cure acrylic resin (rarely).

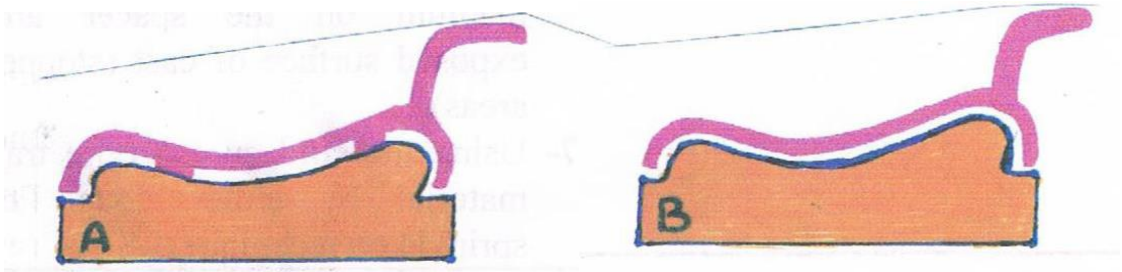


Types of special tray

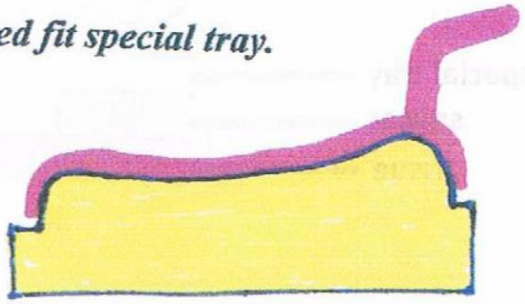
We have two types of special tray:

1. Spaced special tray (with or without stoppers).

2. Closed fitted special tray.



: *Closed fit special tray.*



Fabrication of special tray

1- The cast should be soaked in water.

2-The borders of the special tray and should be marked.

3-The borders of the tray marked on the cast are grooved deeper using a carver, this act as guide to trim the tray later.

4-Severe undercuts should be blocked out using wax.

5- The relief areas are covered with the wax spacer. *To this step the same for close fit and spaced special tray

6-Application of separating medium on study cast.

7- Using the cold cure acrylic tray material by either dough or sprinkle on technique. (For close fit special tray)

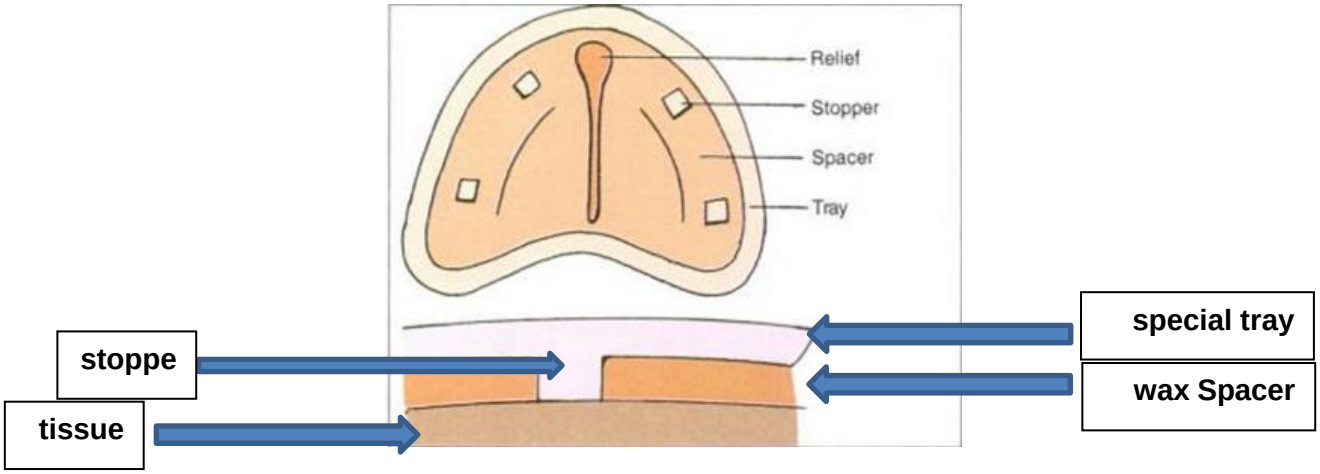
While the difference in spaced special tray:

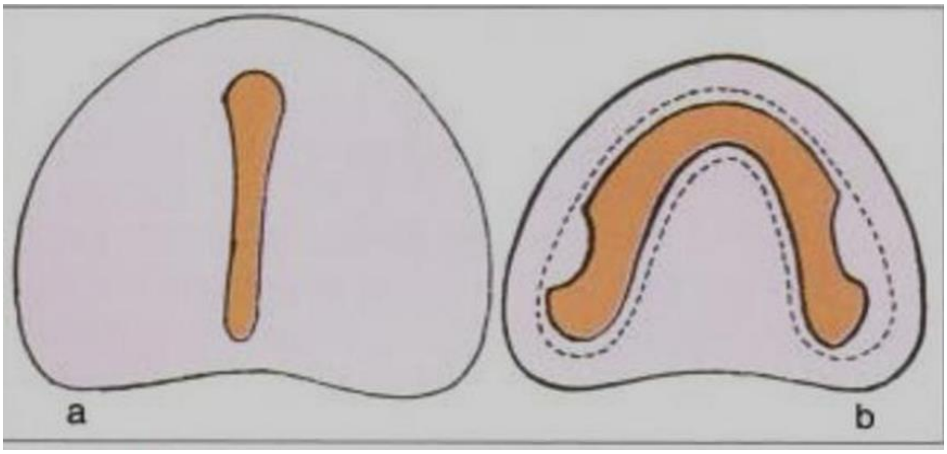
6- Adapting the wax spacer, should be about 2 mm thick, the posterior palatal seal area on the cast is not covered with the wax spacer. Spacer should be cut out in 2-4 mm places so that the special tray touches the ridge in this area. This is done to stabilize the tray during impression making. The part of the special tray that extends into the cut out of the spacer is called stopper, usually 4 stoppers are placed, 2 on the canine eminence and 2 in molar region on either side.

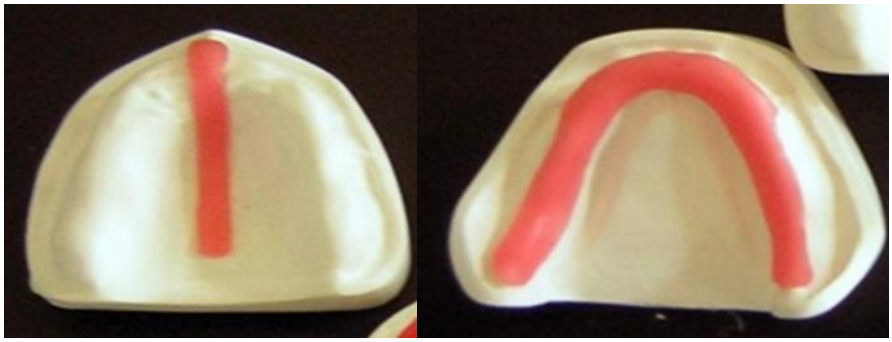
7- Application of separating medium on the spacer and exposed surface of cast (stopper areas).

8- Using the cold cure acrylic tray material by either dough or sprinkle on technique.

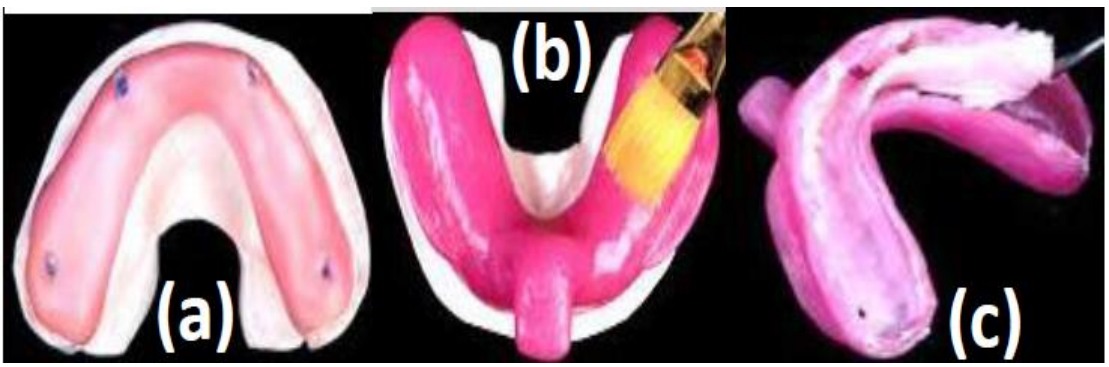
9- When the special tray is removed from the cast, the wax spacer is left inside the tray to be properly positioned in the mouth during border molding procedure.







Relief for maxillary (a) and mandibular tray (b).



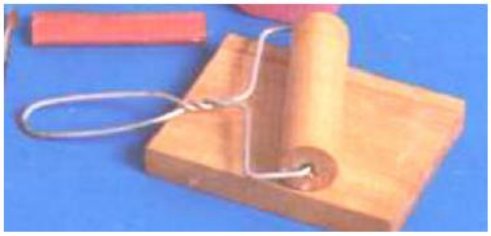
Wax spacer (a), spaced special tray (b), removing of wax spacer (c).

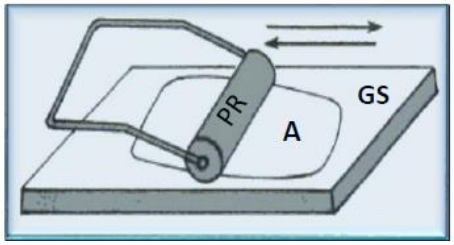
Finger adapted dough method

1- The powder and liquid should be mixed in a mixing jar. After mixing the monomer and polymer the mix undergoes three stages (sandy stage, stringy stage, dough stage).

2- In the dough stage the material is kneaded in the hand, to achieve a homogenous mix. Then the material shaped into a 2 mm thick sheet either by plastic roll or by pressing the material between two glass slabs the two techniques need a separating medium.

3- After that the sheet of acrylic is adapted over the cast from the center to the periphery to prevent the formation of wrinkles. Then cut the excess material with blade before setting the material. Then the material should be held in position until complete polymerization. After that the excess dough material is used to handle fabrication.





Sprinkle- on acrylic technique

This technique used for construction of individualized impression tray, the monomer and polymer are applied in alternate layers till relative thickness is achieved.
The powder and liquid are loaded in separate dispensers. A small quantity of powder is sprinkled on a particular area over the cast and liquid is sprinkled over the powder. Sprinkling drops of the liquid polymerizes the powder. This is continued till the entire ridge and the associated landmarks are covered. Then roughen the ridge area on the top of the tray anteriorly at the midline to make the handle from acrylic resin and attach to the tray.

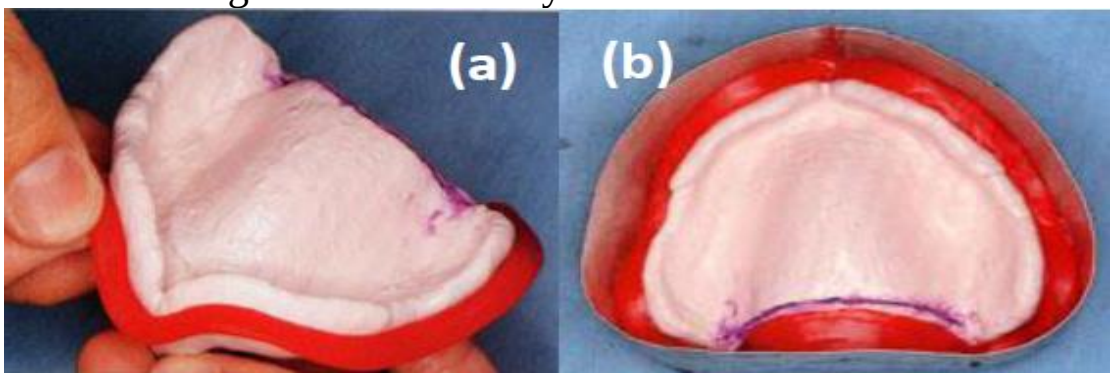
Criteria for Special tray construction:

1. The impression tray must not impinge upon movable structures.
2. The borders must be under extended (2 mm).
3. The posterior limits of the impression tray should be slightly over- extended to ensure inclusion of the posterior detail for development of the post-dam area in upper tray.
4. The tray should be rigid and of sufficient thickness (2-3 mm) that it will not fracture during its use.
5. The tray must have a handle for manipulation and the handle (L-shape) must not interfere with functional movement of the oral structures.
6. The tray must be smooth on its exposed surfaces, and should have no sharp edges which would injury the patient.

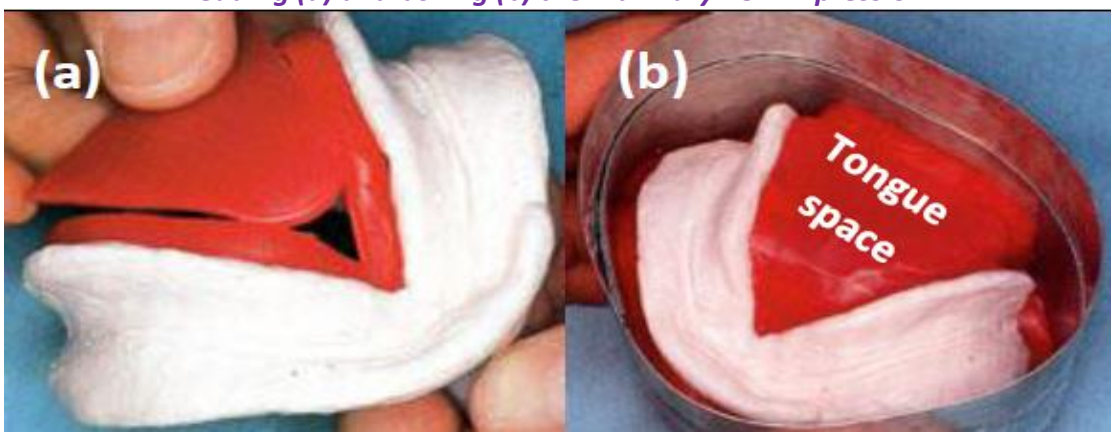
Beading and boxing an impression and making the casts

Beading is done to preserve the width and height of the sulcus in a cast.

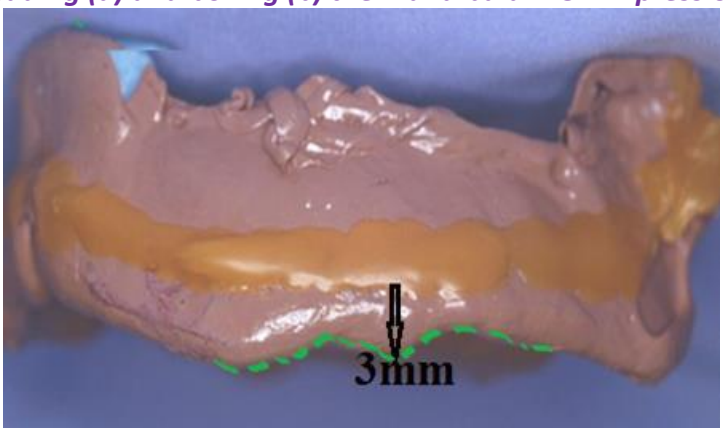
Boxing Is the enclosure of an impression to produce the desired size and form of the base of the cast and to preserve desired details. Boxing impression can be used for primary and final impressions, this procedure cannot usually be used on impression made from hydrocolloid materials (***alginate***) because the boxing wax will not adhere to the impression material as well as the alginate can be easily distorted.



Beading (a) and boxing (b) the maxillary ZOE impression.



Beading (a) and boxing (b) the mandibular ZOE impression.



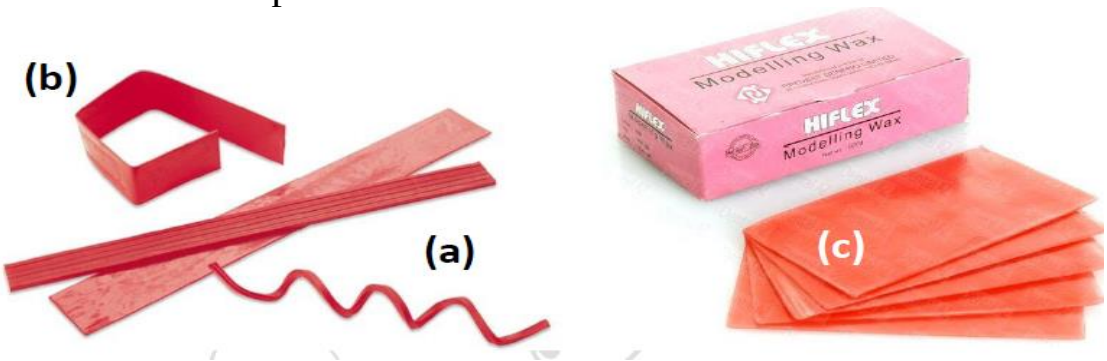
Apply a layer of beading wax around the impression 3 mm below the periphery.

Advantages of boxing:

1. To facilitate pouring the impression with plaster or stone.
2. Produce the desired size and form of the base of the cast.
3. Provide adequate thickness of cast (***11-15 mm***).
4. Preserve desired details and borders of the impression.
5. In the lower impression, boxing makes the reproduction of the lingual borders and tongue space easier.

Materials used for boxing impression:

1. Beading wax: A strip of wax is attached all the way around the outside of the impression approximately (2-3 mm) below the border and sealed to it with wax knife.
2. Boxing wax: A sheet of wax is used to made the vertical walls of the box and it is attached around the outside of the beading wax strip so that it does not alter the borders of the impression, the height of the boxing wax is about 10-15 mm.
3. Base plate wax: A sheet of wax can be used to fill the tongue space in the lower impression that is sealed to lingual border of the impression and should be located just below the lingual border of the impression.



Common faults in impression making:

1. Poor selection of the tray.
2. In sufficient material loaded in the tray.
3. Excessive material loaded in the tray.
4. Failure to press the tray completely to position (insufficient seating pressure)
5. Excessive seating pressure.
6. Incorrect position of the tray before final seating it (Un centralization).
7. Obstruction of the flow of material by lips, cheek or tongue.