

Final or secondary impression

It represents the completion of the registration of the surface or object. It is a negative likeness or registration of the entire denture bearing, stabilizing area and border seal area of the mandible and maxilla for the purpose of fabricating prosthesis. This impression is made with **special tray** and poured with **stone material** to produce the **master cast**.



Master cast (definitive or final cast): A replica of the tooth surfaces, residual ridge areas and or other parts of the dental arch and or facial structures used to fabricate a dental restoration or prosthesis.

Materials used for final impression:

- 1- Zinc Oxide Eugenol impression material.
- 2- Alginate impression material.
- 3- Impression plaster.
- 4- Elastomers impression materials (Rubber base).

a- Polysulphide (rubber base).

b- Silicone (light body).

c- Poly ether.

Irrespective of which material is selected, the optimum result will be achieved only if the custom tray has been constructed and refined correctly.



Impression plaster



Polysulphide impression



Silicone impression

The techniques used for making final impression:

1. Mucostatic impression technique (non- pressure technique).
2. Muco-compression or Functional impression technique (pressure or closed mouth technique).
3. Selective pressure impression technique.

Objectives of impression making:

1. Retention
2. Stability
3. Support for denture
4. Aesthetic
5. Preservation of the residual alveolar ridge and soft tissue.

Retention: Is the resistance of the denture to remove from the mouth by resisting displacement forces at right angle to the occlusal plane.

* Retention = Denture base + Soft tissue.

Stability: Is the quality of prosthesis to be firm, steady or constant to resist displacement by functional horizontal or rotational movement.

* Stability = Denture base + Bone.

*Retention must hold the denture in its position at rest.

*Stability must resist displacement by rocking when a force is applied to teeth over a limited area during function.

Support: is the quality of prosthesis to resist the forces which try to dislodge the denture in a tissue-ward direction and this depends on the anatomical and histological factors of the ridge, therefore the maximum coverage provides the greater the support, which distributes forces over as wide area as possible.

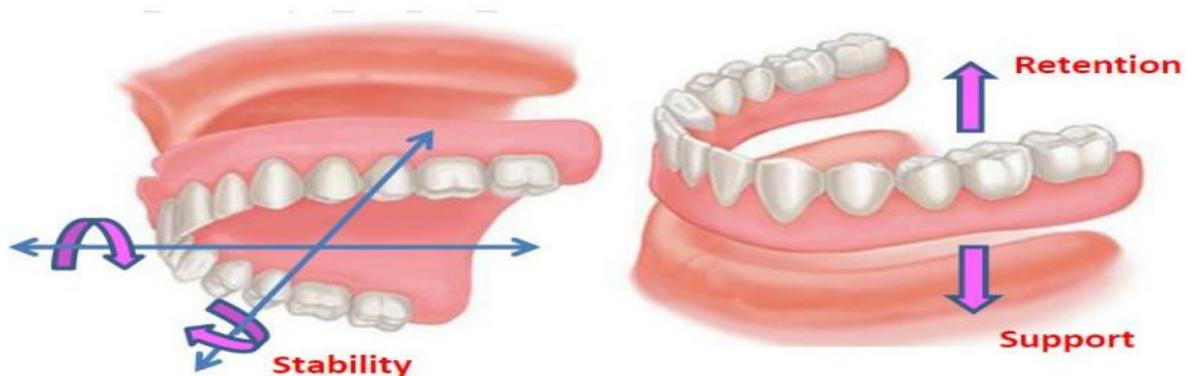
*The best support for denture is the compact bone covered with fibrous connective tissue.

* Support = Denture base + Bone + Soft tissue.

Aesthetics: Border thickness should be varied with the need of each patient in accordance with extend of residual ridge loss. The vestibular fornix should be filled, but not overfilled, to restore facial contour.

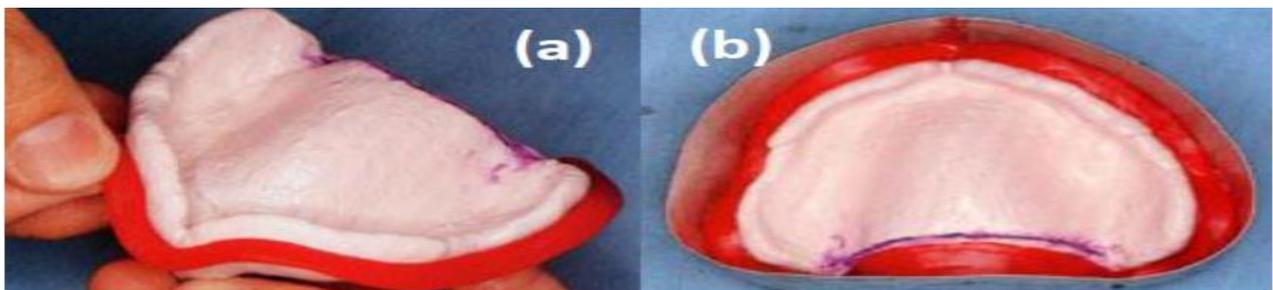
Preservation of the remaining residual ridges is one objective.

Prosthodontist should keep constantly in mind the effect of impression material and technique on the denture base and the effect of the denture base on the continued health of both the soft and hard tissues of the jaws. Pressure in the impression technique is reflected as pressure in the denture base and results in soft tissue damage and bone resorption.

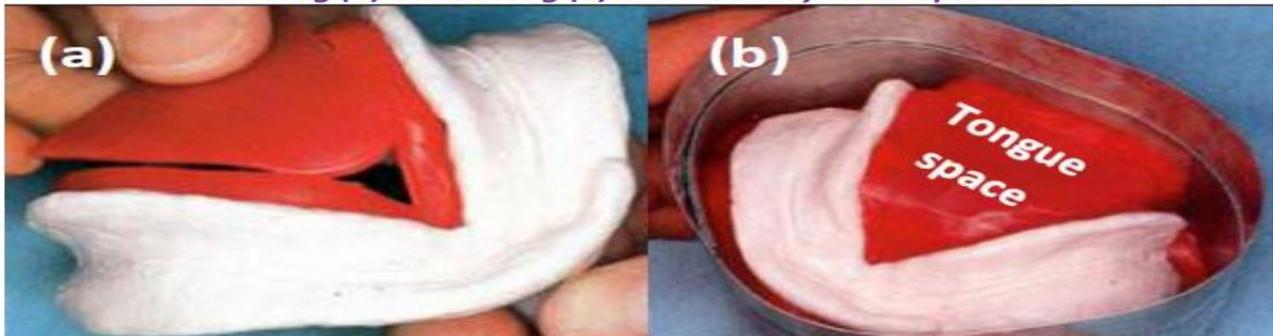


Beading and boxing an impression and making the casts

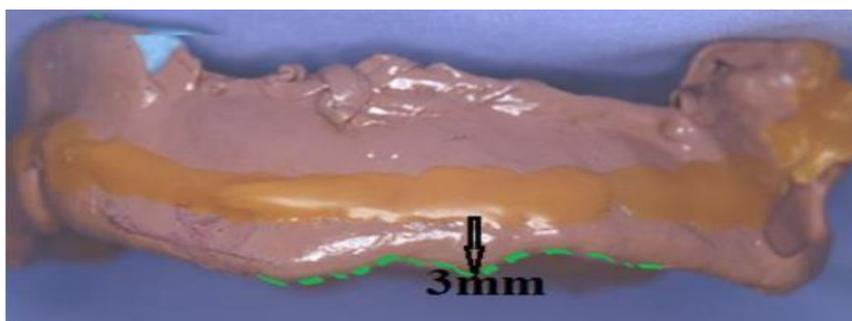
Beading is done to preserve the width and height of the sulcus in a cast. Boxing is the enclosure of an impression to produce the desired size and form of the base of the cast and to preserve desired details. Boxing impression can be used for primary and final impressions, this procedure cannot usually 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.



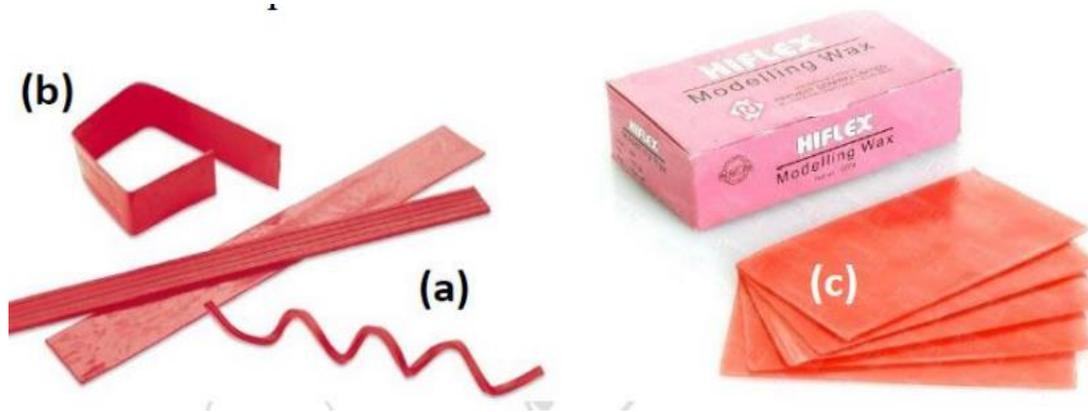
Apply a layer of beading wax around the impression 3 mm below the periphery.

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 make 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. Insufficient 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.