

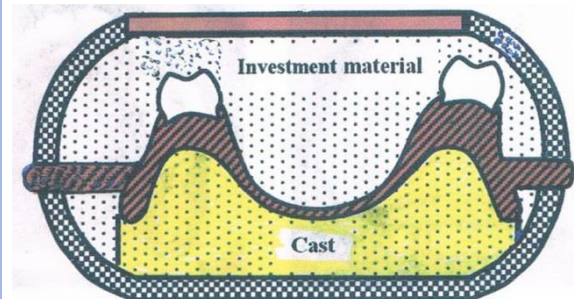
Processing of the denture

Flasking: It is the process of investing the cast with its waxed denture in a flask to make a two sectional mold used to form the acrylic resin denture base.

The flask: It is a metal case or tube uses the dental stone to invest the cast and trial wax denture to create the mold within it, or can be defined as a sectional metal case in which a sectional mold is made of artificial stone for the purpose of compressing and processing dentures or other resinous restorations.

The flask consists of:

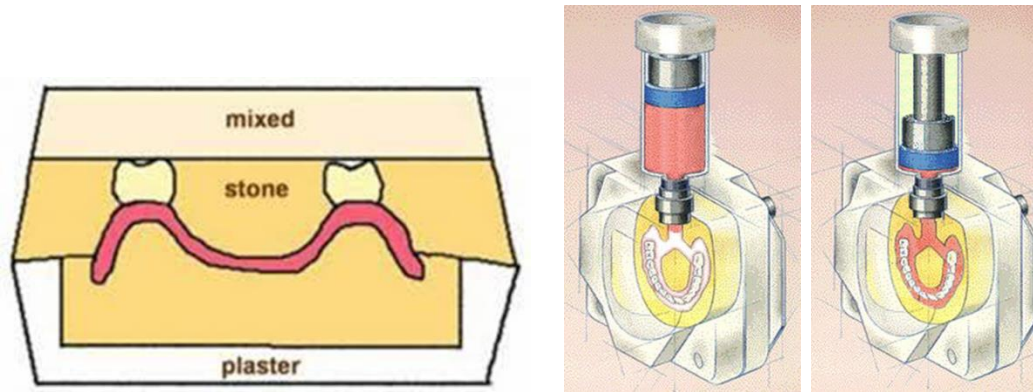
1. Lower half: Drag (bottom), which contains the cast.
2. Upper half: Cope (ring), which captures teeth of the denture.
3. The cover: Cap (lid).



Flasking techniques:

1- Compression technique (open- pack method): The master cast with the waxed-trial denture is invested in the lower half of the flask with gypsum investment material. Then the upper half of the flask is put in place and gypsum is poured to the occlusal surfaces of the teeth. The top portion of the flask is poured with another layer of plaster or stone and the cover is placed on the flask.

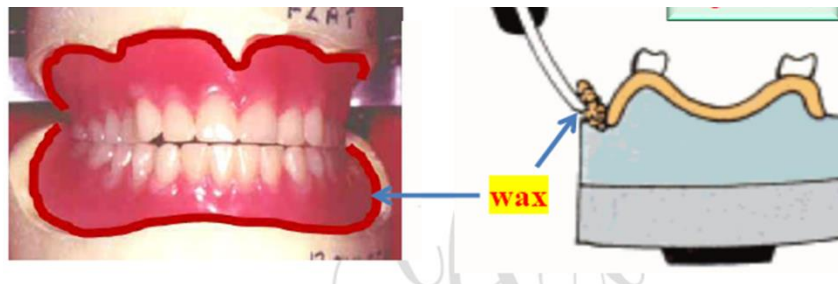
2- Injection molding technique: It is a complicated procedure required special flask and equipment .In this technique the wax pattern is sprued and the material injected into the mold. This process allows injection of further material during polymerization to compensate for the polymerization shrinkage.



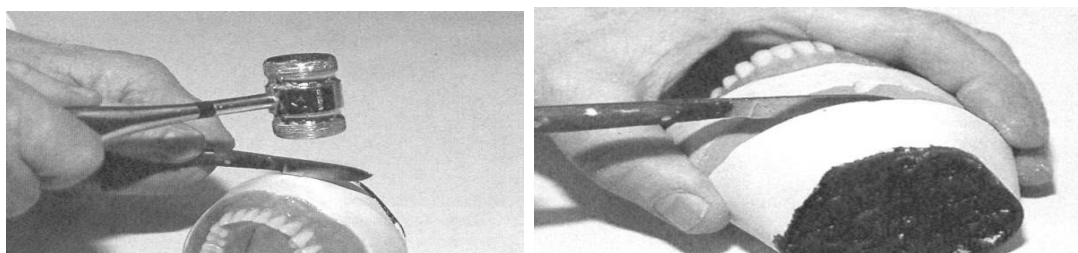
The procedure of processing denture in compression technique:

I. Flasking:

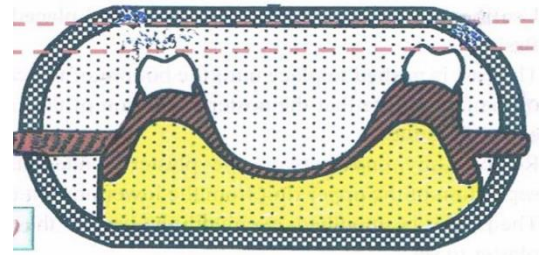
1. Sealing the upper and lower trial denture all over the border until the margin of the cast while the casts still on the articulator.



2. Soak the casts and the mounting plaster in water a few minutes to separate the casts from the mounting plaster, save the plaster mounting as it will be used to reposition the casts on the articulator after the dentures have been processed.



3. Make sure that there is enough space between the incisal and occlusal surfaces of the teeth and the top of the upper ring about 3-6 mm, if there is no space then the cast base must be reduced in thickness.



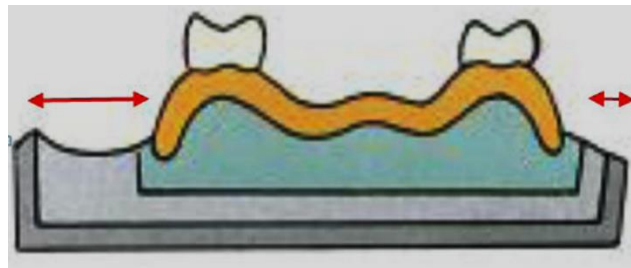
4. Adapt a layer of tinfoil to the base of the casts, slightly overlapping the edges to insure clean removal from the investment, apply separating medium to the casts and flask.

5. Waxed denture painted with surface tension reducing agent to decrease likelihood of bubbles formation.

6. **Invest the lower half of the flask first:**

a. Use a mixture of plaster or stone and placed in the base of the flask.

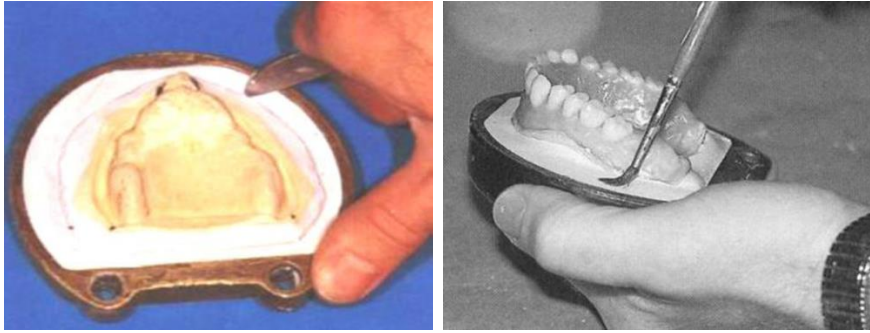
b. Center the cast in the lower half of the flask and pushed to place until the bottom of the cast touches the base of the flask. Note that the posterior portion of the cast is level with the edge of the flask.



c. Remove any undercuts in the plaster. Undercuts will prevent the separation of the upper ring from the lower portions of the flask.

d. The plaster smoothed even with the base of the cast and allows the plaster to set.

e. After the final setting of plaster has occurred, it will be coated with separating medium.



7. Investing the upper half of the flask:

- a. Reposition the ring (upper portion) of the flask.
- b. Mixing of stone or plaster done, pouring of the plaster to flow and reach all surfaces of teeth without any air babbles by putting the flask on the vibrator, the plaster or stone must reach the incisal edge and occlusal surface of teeth.
- c. Separating medium painted on the second layer of plaster after setting and smoothing of plaster.
- d. A third mixing of stone done and pouring it until the flask is filled with stone and the flask is covered and some stone enter through the holes in the cover and around the edges, it is essential to have metal-to-metal contact.
- e. The stone left to set completely for about 45 minutes.



II. Wax elimination: After the complete set of the gypsum, the flask is ready for the next step which is "Wax elimination":

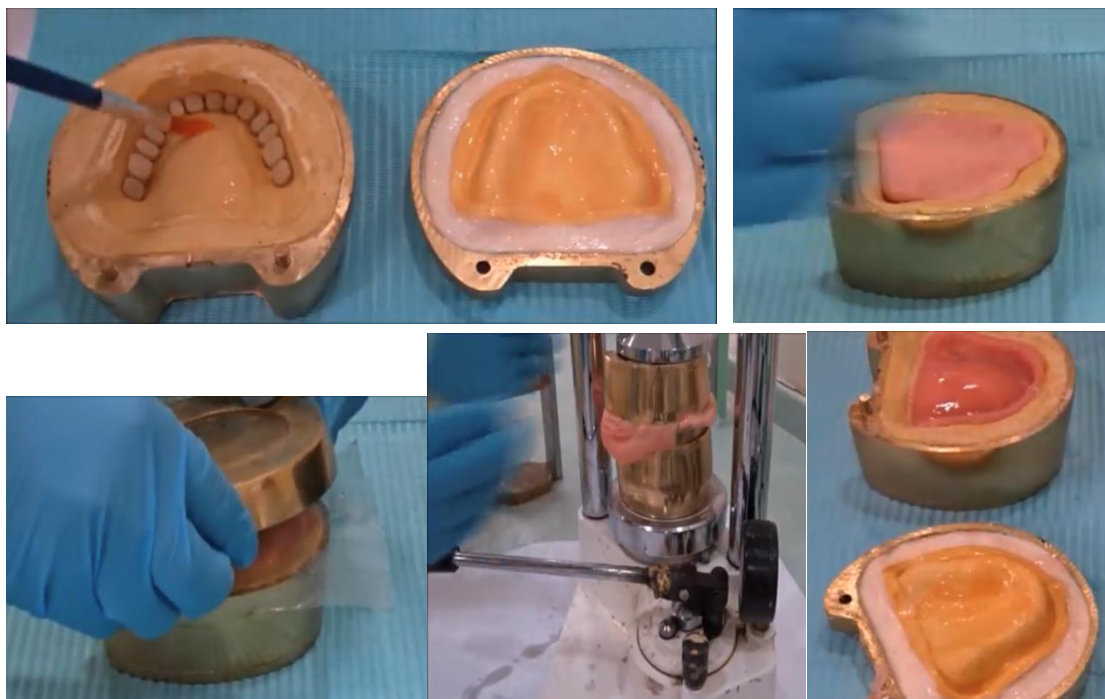
1. Place the flask on a spring clamp and lower it into boiling water for 5 minutes. This will soften the waxed denture base, which can easily remove from the mold when the flask opened.

2. After five min., remove the flask from the boiling water and gently open it, insert a wax knife between the lower and upper half and gently separate them.
3. Remove the semisolid pieces of the waxed denture base. All the teeth should remain in the top half of the flask. Using more hot (boiling) water to flush out all the remaining wax.
4. Wax solvent can be used with stiff brush to remove any remaining wax on teeth.
5. As soon as possible, flush the mold with clean hot water to which a detergent has been added. The detergent will be flush out the wax residue from area that cannot reached with the wax solvent. Immediately flush the mold with hot water to remove all traces of the detergent solution.
6. It is essential to remove all wax residue. Acrylic resin will not adhere to a surface coated with wax.
7. Stand the flask on its side and allow it to drain, dried and cooled.



III. Packing and Curing:

1. Separating medium used on plaster or stone, care should be taken not to painting the teeth with separating medium.
2. The flask is left to dry and another coat is painted on the flask and left to dry.
3. Hot or heat cure acrylic is used polymer/ monomer mixed according to manufacture instruction. Usually 10 CC of monomer and 30 CC of polymer will be enough to pack an average-sized denture, after mixing of the material on clean jar and reach dough stage, it's ready for packing.
4. Pack the material in the upper half of the flask, being sure to press it well into the area around the teeth. Use enough material to insure over-packing on the first closure using nylon sheet. At least two trial closures done and before the final closure, a thin layer-separating medium applied on the cast and the nylon pressure by bench hydraulic press of about 100 kg/cm². Then the flask is put in spring clamp sheet is removed and then the two halves of the flask are closed and the clamp is closed tightly, it is essential to have metal-to-metal contact.



IV. Curing: It is the process of polymerization of acrylic resin by heat, the amount of heat must controlled while processing acrylic resin.

Types of curing cycle:

A. Long cycle: heat the flask in water at 60-70 °C for 9 hours.

B. Short cycle: heat the flask in water at 74 °C for 90 minutes, then boil for 1 hour for adequate polymerization of the thinner portions. The best curing cycle is the slow curing cycle because most of the conversion of monomer to polymer occurs during the period at 70°C and the rapid curing cycle may induce greater dimensional changes in the dentures than slow curing method.

* After curing and before deflasking, the flasks must cool slowly to room temperature to allow adequate release of internal stresses and thus minimize the risk of warpage of the bases.

V. Deflasking: It is the removal of the mold from the flask and separates the denture and the cast from the mold (divesting). The flask is removed from the mold using a flask ejector, which is used to separate the flask from the mold after removing of the cover.

By using a saw longitudinal and horizontal cuts are carefully made through the plaster or stone and the pieces are gently removed. The cured dentures and their casts have been removed from the mold.

