Investment

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Lect 14

Investing:

It is the surrounding of the wax pattern with a mold of heat resistant material that can accurately duplicate the shape and anatomical features of the wax pattern to obtain a mold after burning out the wax pattern.



Objectives of investing:

1. It should provide an accurate reproduction of the anatomical form of the wax pattern.

2. **It should provide sufficient strength to withstand the heat of the burnout procedure and the actual casting of the molten metal.**

3. **It should provide compensation expansion equal to the solidification shrinkage of the metal; therefore, the mold cavity should be larger than the wax pattern (if this does not happen, the restoration will be smaller than the wax pattern).**

4. Sufficiently porous to allow escape of gases.

5. Inexpensive.

Investment materials types and uses

Investment	Uses
1. Dental plaster or stone	Mold for acrylic dentures
2. Gypsum-bonded materials	Mold for gold casting alloys
3. Silica-bonded materials	Mold for base metal casting alloys (rarely used)
4. Phosphate-bonded materials	Mold for base metal and gold casting alloys; Mold for cast ceramics and glasses

To do investing we need:

1. Casting ring.
2. Ring liner.
3. Crucible former.
4. Investment material.





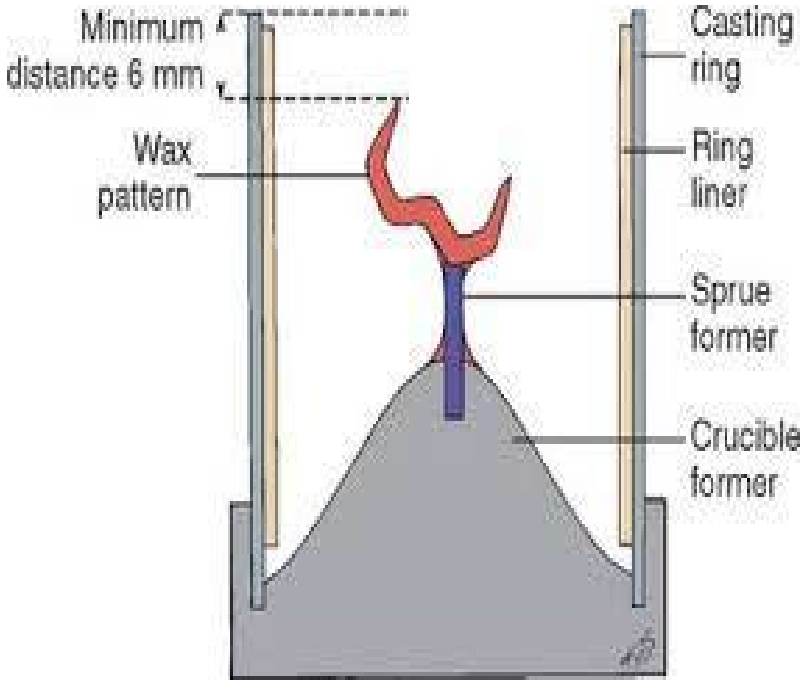


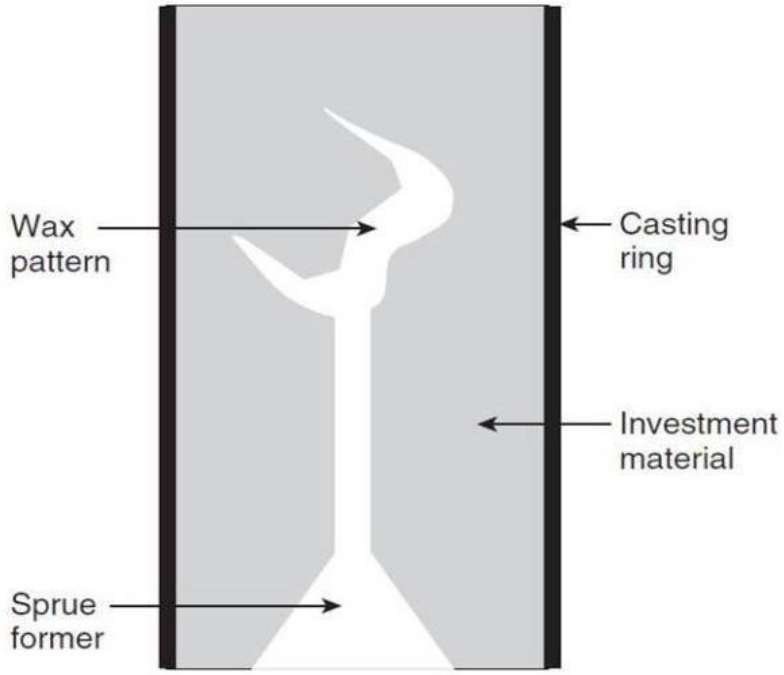

Purposes of using conical crucible former:

1. To get proper position of the wax pattern inside the casting ring.
2. To create a cone-shape way for easy entrance of the molten metal.

Mold Cavity:

It is the space created inside the investment after the burnout procedure which was occupied by the wax pattern, sprue and crucible former.





Selection of Investment Material

Factors affect the selection of investment material are:

1.The casting temperature to be used.

2.The type of alloy to be cast.

Investing Techniques:

1.Hand mixing

2.Vacuum mixing

Vacuum mixing: Advantages :

1.Reduce the amount of porosity in the investment .

2.Texture of the surface casting is smoother with better detail reproduction .

3.Compressive strength of the investment is increased.

Step-by-Step Procedure

Brush technique

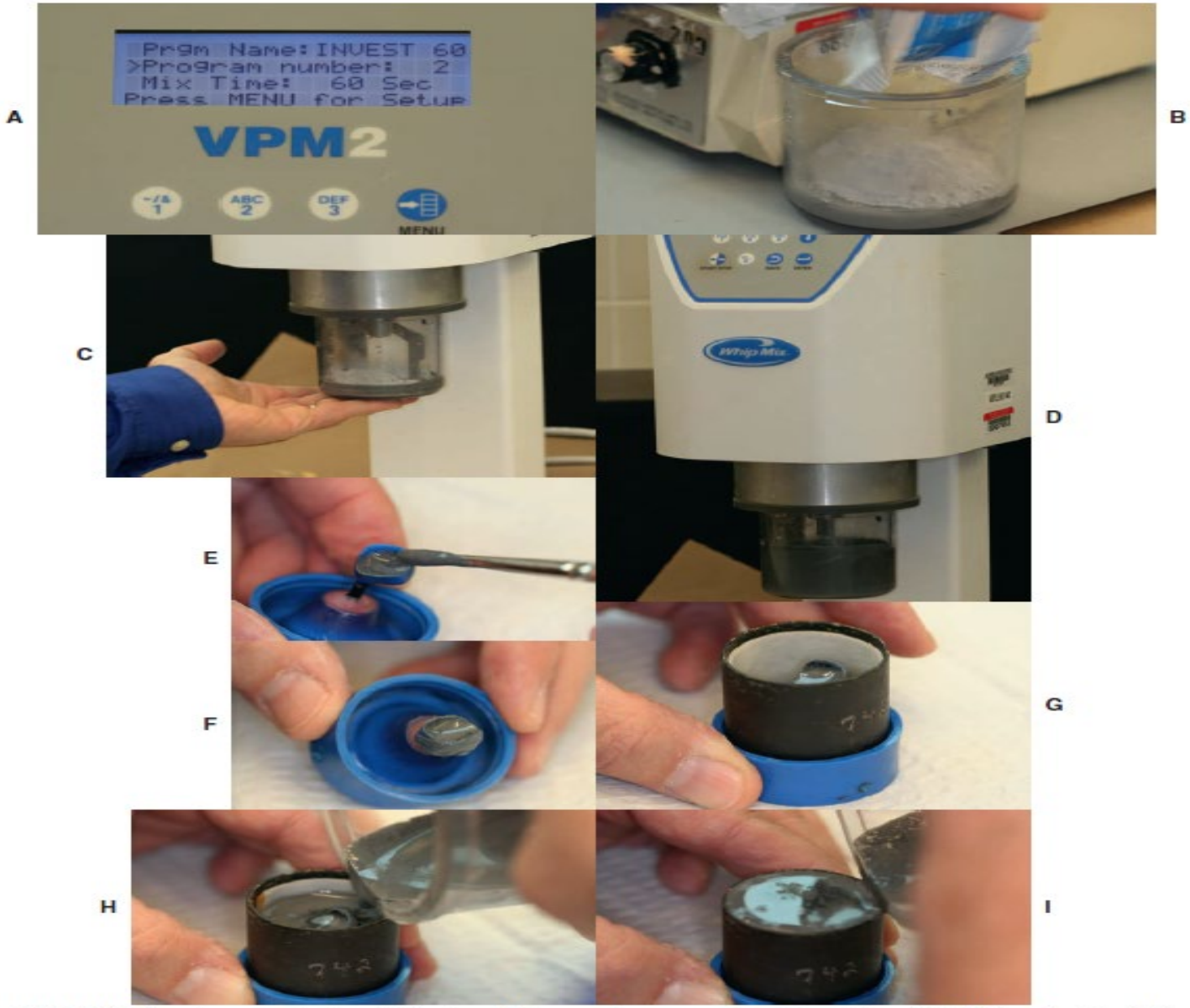
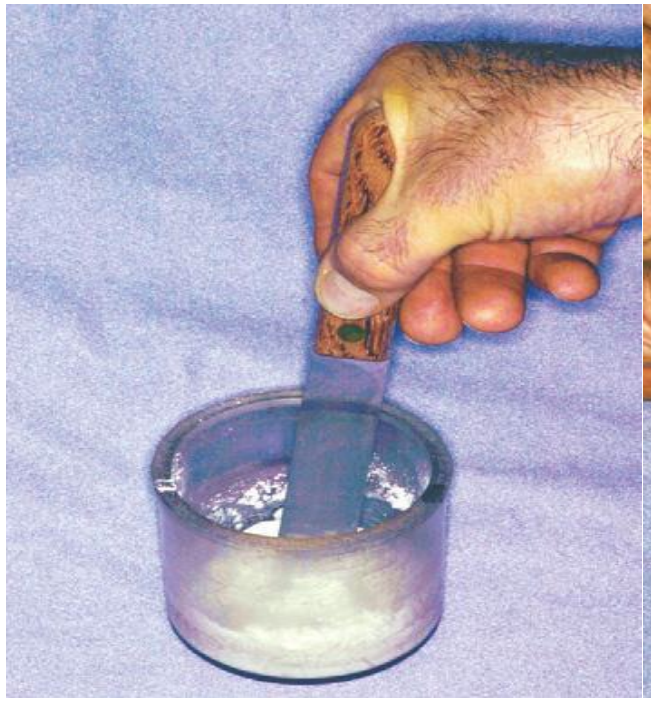


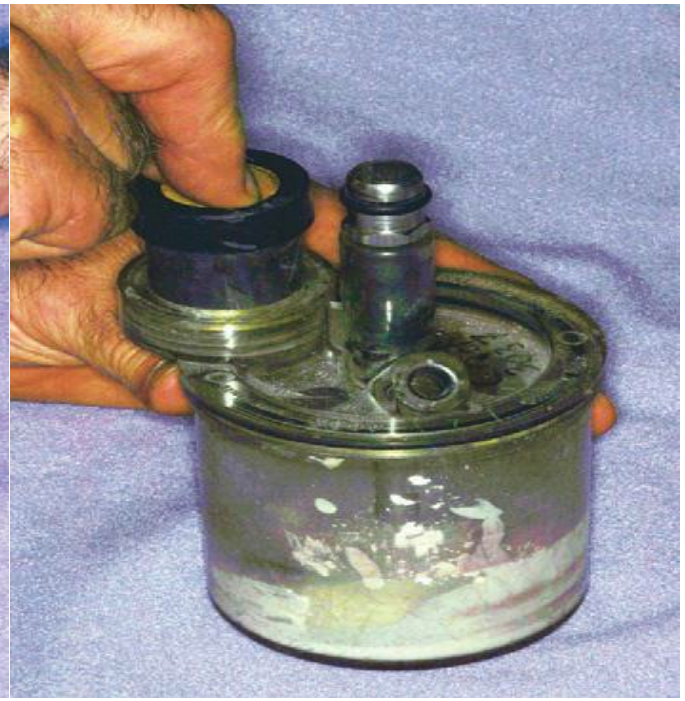
FIGURE 22-18 ■ Investing procedure: brush technique. **A,** The correct program on the mixing unit is selected. **B,** Investment is added to precisely measured-out liquid. **C,** The chuck of the mixing bowl is inserted into the slot of the vacuum mixer. **D,** The bowl is stabilized by the vacuum created between its lid and the base of the unit as mixing progresses. **E,** A No. 6 or No. 8 brush is used to coat the pattern. **F,** The pattern is completely coated, and the casting ring can now be attached. **G,** Casting ring with liner affixed to the crucible former. **H,** The bowl is vibrated, and the ring is filled. When the investment reaches the level of the wax pattern, the ring must be tilted to reduce the risk of trapping air inside the pattern. **I,** The ring is completely filled.

Vacuum Technique:

1. First, hand-spatulate the mix

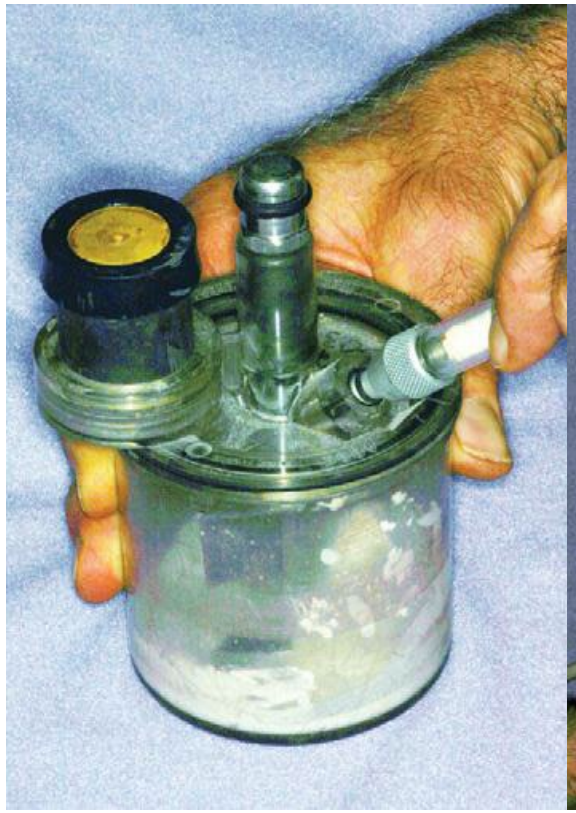
2. With the crucible former and pattern in place, attach the ring to the mixing bowl.

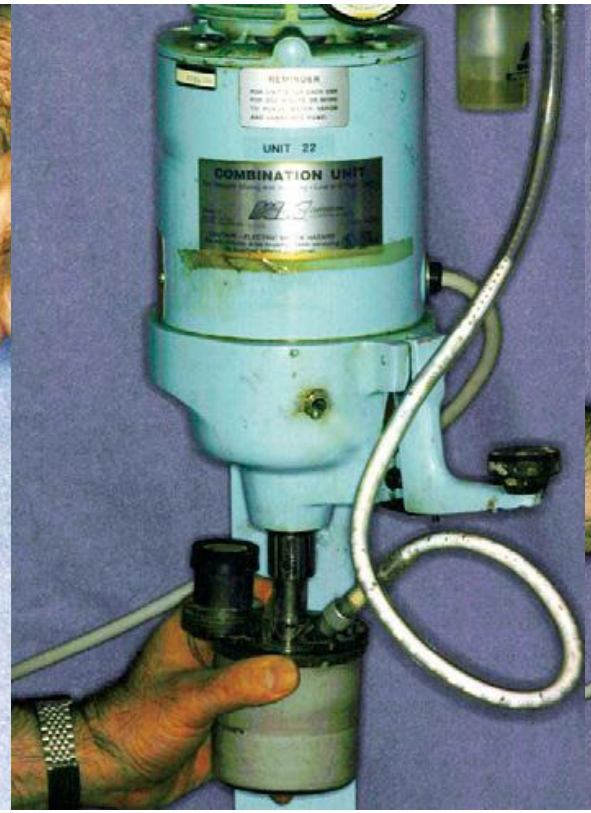




3. Attach the vacuum hose and mix according to the manufacturer's recommendations.

4. Invert the bowl and fill the ring under vibration.







5. Remove the vacuum hose before shutting off the mixer.

6. Remove the filled ring and crucible former from the bowl.





7. Immediately clean the bowl and mixing blade under running water.

