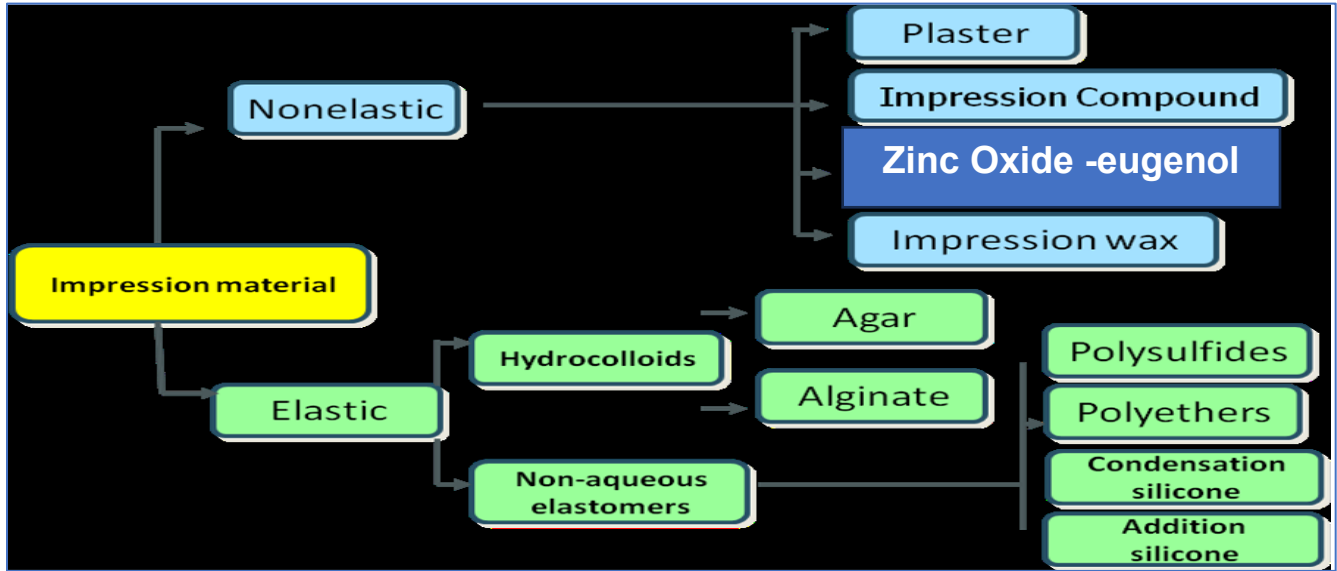


Classification

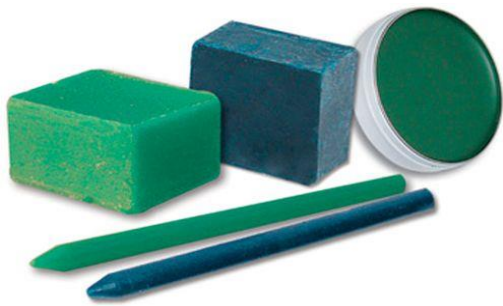
According to the ability of set material to be withdrawn over undercuts.



- Impression Wax:

□ Is a thermoplastic material (that softens on heating and hardens on cooling, the process is reversible.) *Forms:*

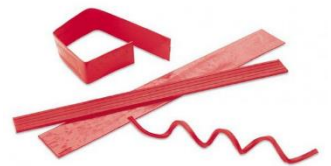
□ Sticks, strips, tubes, and others.



Blocks & tubes



sheets



strips & boxing wax for I tr

Reversible hydrocolloid (Agar):

It is made mainly of water with agar and other components such as colorants, flavors, and sulfate compounds.

It needs:

-special equipment to heat, store, and temper the material.

-Special impression trays that circulate cooling water.

Gel Sol-Gel

(solid) heating (solution) cooling (solid)

Advantages:

1-It can be used in a moist field.

2-It poured easier than elastomeric impression materials.

Disadvantages:

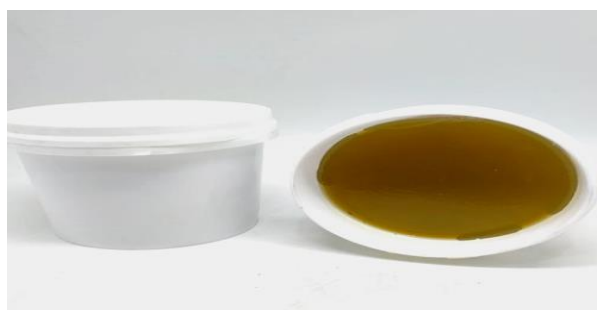
1-It needs to be poured immediately.

2-It cannot be poured more than once.

3-It is not dimensionally stable for a long time.

4-It requires expensive equipment.

5-It requires the use of water-cooling hoses that sometimes leak.



Investments materials

Investing: This is a process of surrounding the wax pattern with a suitable investment material to accurately duplicate the wax pattern's shape and anatomical contour.

Requirements of Investments:

Ideal Properties Required for an Investment

- 1. Easy to manipulate:** it should be easy to mix & manipulate and to paint the wax pattern. It should also harden within a relatively short time.
- 2. Sufficient strength :** The investment should provide enough strength at higher temperatures to withstand the impact force of the molten metal and the inner surface of the mold should not break down at a high temperature.
- 3. Stability at higher temperatures:** Investment must not decompose to give off gases that could damage the surface of the alloy.
- 4. Sufficient expansion:** It must expand enough to compensate for shrinkage of the wax pattern and metal during the casting procedure.

5. Beneficial casting temperatures: it should have a good thermal expansion over a wide range of casting temperatures.

6. Porosity: It should be porous enough to permit the air or other gases in the mold cavity to escape easily during the casting procedure.

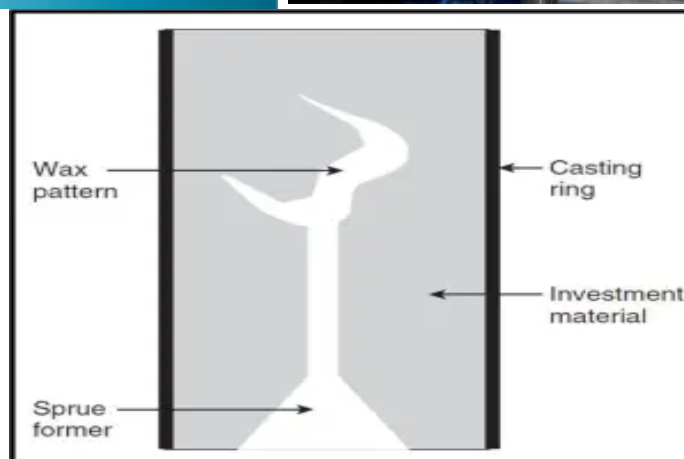
7. Smooth surface: Fine detail and margins on casting should be preserved.

8. Ease of divestment: The investment should break away readily from the surface of the metal and should not react chemically with it.

9. Inexpensive.

7

INVESTMENT MATERIALS



Component of investment material

The investment material consist of a mixture of
1-Refractory material.2- Binder material, and
3-chemical modifiers,

Refractory material –it is form of silica such as quartz, tridymite, or cristobalite, this is capable of sustaining exposure to a temperature without significant degradation,

- **Binder material** –it is capable of binding the refractory material to form a coherent solid mass. Commonly used binder are Alfa-hemihydrates, ethyl silicate, phosphate.
- **Modifiers**-Non oxidizing agent retarders, accelerators, and coloring agent are added to the refractory and binder material to enhance their physical properties ,

THANK YOU