

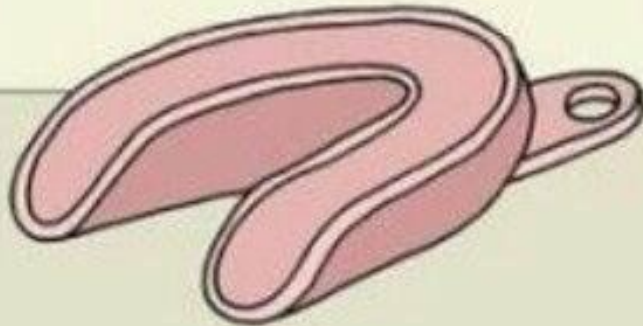
A decorative frame consisting of two thick black L-shaped lines. One L-shape is in the top-left corner, and the other is in the bottom-right corner, facing each other.

# IMPRESSION MATERIALS

By: Hisham Alhamrayn

DUDE... WHAT  
ARE YOU DOING?

GOT A DATE TONIGHT  
...AND I NEED TO MAKE A  
GOOD FIRST IMPRESSION!



# Objectives

- Define the dental impression and impression materials.
- List the classification of impression materials.
- Describe the uses of dental impression materials.
- Summarize the Impression techniques.
- Share the advantages and disadvantages of each impression material.

# Impression materials

## ■ Impression material Definition:

The materials used to record the shape accurately and dimensional characteristics of teeth to precisely transfer the impression to the model

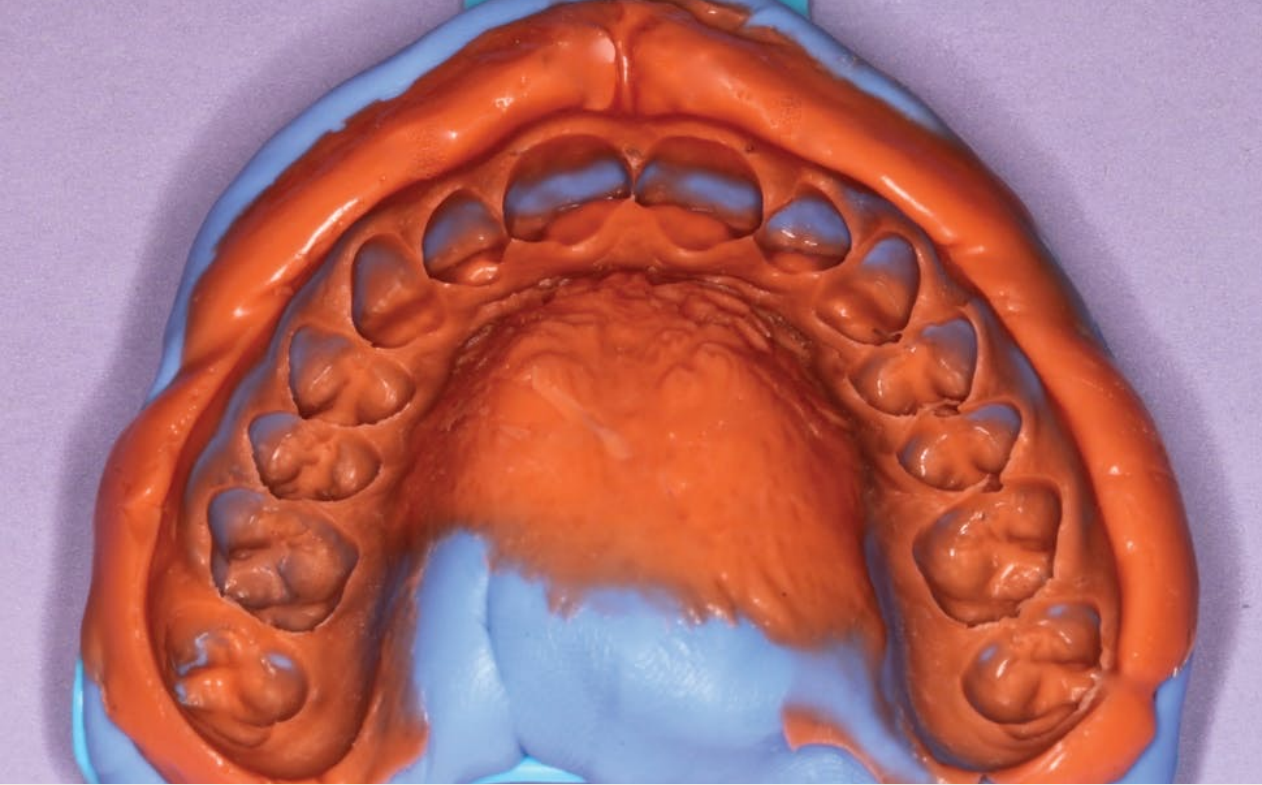
## ■ Dental Impression Definition:

The dental impression is the negative replica of the oral soft & hard tissues.



# Uses of dental impression materials:

- The dental impression materials are used to copy the oral soft & hard tissues for:
  - - Analyze and diagnose a clinical case
  - - Build occlusal splints and mouthguards
  - - Treatment planning
  - - Maintaining records



# Impression techniques:

- 1- Full dentures impression
- 2- Partial dentures impression
- 3- Fixed prosthodontics

# #Classification of impression materials:

## 1. Non-elastic (Rigid):

Material is complex and not suitable for the final impression.

### Types of non-elastics:

- - Impression Plaster
- - Impression compound
- - Zinc oxide-eugenol
- - Impression waxes

# Classification of impression materials (count):

## 2- Elastic:

The elastic is flexible at the time of removal from the mouth

### Types of elastics:

#### a. Hydrocolloids:

- i. Reversible (Agar)
- ii. Irreversible (Alginate)

#### b. Elastomers:

- i. - Polysulfide
- ii. - Silicones
- iii. - Polyether



# Requirement for impression materials:

- 1- Sufficiently fluid to reproduce all of the fine details.
- 2. Suitable setting time
- 3. Acceptable to the patient(pleasing odor, color, and taste)
- 4. Safe (Not toxic or irritant)
- 5. Sufficient mechanical strength
- 6. Dimensionally stable
- 7. Good keeping qualities

# Impression Plaster:

- Used for final impression for a complete denture.
- Rarely used these days



# Impression Plaster:

## Advantages

- Simple to mix
- Work time 2-3 minutes
- Set time 2-3 minutes
- Low cost
- Good accuracy and dimensional stability

## Disadvantages:

- Insufficient strength
- rough surface finish
- Abrasion resistance is poor
- Rigid when set



# Impression compound:

A thermoplastic, rigid and reversible impression material.

## Types of impression compound:

1. Types 1: Low fusing impression compound. Making primary impression for an edentulous ridge.
2. Types 2: High fusing impression compound. Making impression tray.



# Impression compound:

## Advantages:

- Added or removed until achieved a good impression.
- Reused for the same patient.

## Disadvantage:

- Not record fine details.
- Poor dimensional stability

## Zinc oxide-eugenol:

Used for final impression for complete denture



### Advantages:

- Low-cost and simple to use
- Good flow aids in the recording of small details
- Good dimensional stability

### Disadvantage:

- Setting time varies depending on temperature and humidity
- It is not compatible with stock trays
- Fragile



# Impression waxes:

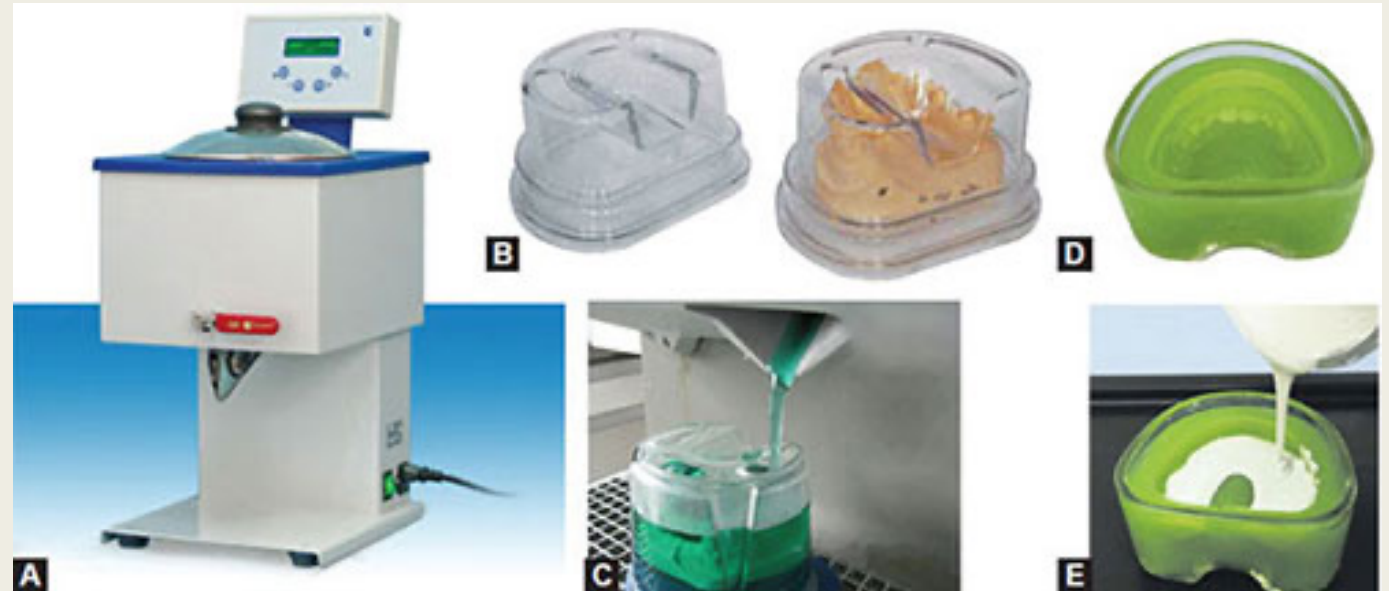
- Used to record the edentulous ridge
- Used to correct a small imperfection in other impressions.
- Used as bite registration



# Hydrocolloid impression:

## 1- Agar (Reversible)

- Used for crown and bridge impression.
- rarely used now
- the first elastic impression material to be used in dentistry.





# The agar impression

## **Advantages:**

- Dimensionally accurate
- No mixing is required
- Reversible
- Affordable

## **Disadvantages:**

- Tears easily
- Dimensional instability
- Infection control is a difficult task.
- Material prepared in advanced
- Water bath is required

# Hydrocolloid impression:

## 2- Irreversible (Alginate):

- Most widely used impression material
- Used as Diagnostic casts for treatment planning



# The Alginate Impression

## **Advantages:**

- Inexpensive
- Easy to use
- Hydrophilic
- Good impression

## **Disadvantage:**

- Low tear strength
- Dimensional instability

# Elastomers impression:

## 1-Polysulfide:



Useful For a long working time

### Advantages:

- Long working time
- High tear resistance
- Margins easily seen

### Disadvantages:

- Requires custom trays
- Good with stone
- Stains clothing
- Bad odor.
- Impression to be poured within 1 hour

# 2- Silicone:

## a. Addition Silicone:

The most widely used impression material in fixed prosthodontics

### Advantages:

- Highly accurate
- High dimensional stability
- Pour up to one week

### Disadvantages:

- Hydrophobic



# 2- Silicon (count):

## b. Condensation Silicone:

More affordable than other elastomeric materials

### Advantages:

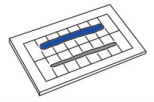
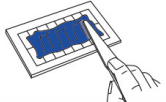
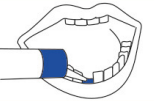

- Excellent elasticity recovery
- Good odor and flavor.
- Accurate reproduction

### Disadvantages:

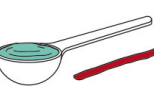
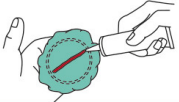



- Pour immediately
- Dimensional deformation over the time



### SILECT® light

	30 sec.		
1 min.		3 min. 30 sec.	

### SILECT® putty

	4 cm		
30 sec.		1 min.	
3 min. 30 sec.			

# 3- Polyether:

Supplied in two pastes catalyst and base

## Advantages:

- Fast setting
- Clean
- Auto mix dispense
- Least hydrophobic
- Good stability

## Disadvantages:

- Bitter taste
- Absorbs water
- Leaches components
- Expensive





# OBJECTIVES



# Critical Thinking Activity

- **Case:**

Assume that a patient came to your dental clinic, and you checked on his teeth, and everything was great. You cleaned his teeth, and when you finished, he told you that he wanted to do a bleaching tray.

- **Q:** What is the appropriate impression material can be used to do bleaching tray?
- **Q :**after you got the impression from the patient and the patient left the clinic, you noticed an imperfection in the impression. What can you do?