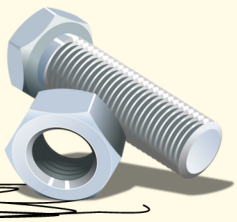
Dr.Ahmed ELshourbagy

ONLINE DENTAL ACADEMY

Impression material

DENTAL BIOMATERIALS



IMPRESSION MATERIAL

- REQUIREMENTS:

1- Accuracy
2- Biocompatible
3- Don't Affected By Fluids
4- Acceptable Odor & Tas
5- Easy To Manipulation
6- Suitable Working Time
7- Suitable Setting Time
8- Accept Addition
9- Readily Disinfected
10- Good Shelf Life
11- Able To Be Electroplated

- FACTOR AFFECTING ACCURACY

1- Flow & Hydrophilic
2- Dimensionally Accurate
3- Dimensionally Stable
4- Elastic Recovery
5- Adherent To The Tray
6- Compatible With The Model

- CLASSIFICATION OF IMPRESSION MATERIALS:

- Mechanism Of Setting
  - Irreversible {Plaster, Zinc Oxide, Alginate, Rubber}
  - Reversible {Wax, Agar, I. Compound}
- Use
  - Complete Denture
  - Partial Denture
- Accuracy
  - Primary Impression (Alginate, Impression Compound)
  - Secondary Impression {Plaster, Zinc Oxide, Agar, Rubber}
- Behavior after setting
  - Non elastic - {wax, impression compound, Zinc oxide, plaster}
  - Elastic - {hydrocolloid, alginate, rubber}

	Plaster	I. Compound	Zinc Oxide	Agar	Alginate	Polysulphide	Condensation Sillicon	Addition Sillicon	Poly Ether
Supply	Powder + Water	Sheets / Sticks	2 Pastes	Tube or Gel	Powder + Water	Light Heavy Regular	Light Heavy Regular Putty	Light Heavy Regular Putty	Light Heavy Regular
Setting Reaction	$CaSO_4.½ H_2O + H_2O \rightarrow CaSO_4.2H_2O$ + Heat Chemical Reaction	Physical Reaction	Chemical Reaction	Physical Reaction	Chemical Reaction	. Condensation Polymerization Reaction With Water	. Condensation Polymerization Reaction With Alcohol	. Addition Polymerization	. Ring Opening Addition Polymerization
Flow	High	Low	Good	Good	Good < Agar	Record Fine Details			
Dimential Acuuracy	High	Low	Good	Good	Bad	0,25 % Shrinkage	0,6 % Shrinkage	0,02 % Shrinkage	0,2 % Shrinkage
Elasticity	Rigid	Rigid	Rigid	Vescoelastic 98,8 %	Vescoelastic 97,3 %	Vescoelastic 98 %	Vescoelastic 99,5 %	99,5 %	98,9 %
Adhesion	Adhered To Tray	Adhered	Adhered	Not Adhered	Not Adhered	Regulare Need (Adhesive)		Light, Heavy , Putty (Perforated Tray)	
Stability	Good	Bad بسبب الحرارة	Good	Bad	Bad	Should Be Cast In One HourTo (Allow Elastic Recovery , Prevent Shrinkage)			
Compatibility With Gypsum	Not Compatable, Need Separating Medium	Compatible	Compatible	Not Compatible But Can Solved		Compatible	Recently Is Very Good But Old Are not Comatible	Recently Is Very Good But Old Are not	Compatible
Electroplate	x	Electroplate With Copper	x	x	x	Electroplated By Copper			x
Tray	Non Perforated Special Tray	Non Perforated Stock Tray	Non Perforated Special Tray	Special Designed Perforated Tray	Perforated Stock Tray	Perforated Tray In (Light, Heavy & Putty)			
Use	. Secoundary Impression Edentoulus	. Primary Impression . Border Molding . Wash Technic	. Secoundary Impression Edentoulus	. Secoundary Impression . Duplicating Cast	. Primary Imperssion For Edentoulus & Dentoulus	. Implant . Inlay . Crown & Bridges . Partial Denture	. Implant . Inlay . Crown & Bridges . Partial Denture	. Implant . Inlay . Crown & Bridges . Partial Denture	. Implant . Inlay . Crown & Bridges . Partial Denture
Manipulation	. Mix With Water 50 / 100 ml	. Heated In 60 C° Water Bath . Should Be Kneaked Out Of Water	Get Equal Length From Both Tubes On Glass Slap And Mix With Spatula	. Liquefication 100 C° . Storage 65 C° . Tempering 45 C°	. Shake The Alginte Powder Container . Water / Powder Ratio In Rubber Bowel . Add Water To Bowel	. Highest Tear Strength	High		Higher

IMPORTANT POINTS

- Use β.Caso4 Not α.Caso4?

1- More Water less Injury

3- More Water Increase Flow

2- Less Exothermic

- Impression Compound: Should Be Cast Maximum In An Hour?

Due To Unstable Dimensions.

- Zinc Oxide Eugenol Setting Can Accelerate By?

- 1- Humidity 2- Heat 3- Primary Alcohols

- Zinc Oxide = May be Irritant & May Adhere To Tissue So, The Lips Should Be Coated By Vaseline.

- Alginate ⟶ Irreversible, Because It's Chemical Reaction.

- Agar ⟶ Reversible Hydrocolloid.

- Hydrocolloid { Alginate & Agar } Has Bad Stability?

1- Syneresis and imbibition

2- Thermal Changes

- Poly Sulfide Can Accelerate By?

1- Temperature

2- Moisture Drop Of Water

3- Increase Reaction Rate

- Disadvantages Of Poly Sulfide?

Bad Odor, Staining, Long Setting Time & High Shrinkage.

- Condensation Silicon: Can Putty Wash Impression As A Tray, To Decrease Shrinkage To Fillers.

- Condensation & Addition Silicon Accelerated By:?

Temperature, Drop Of Water, base/accelerator ratio

Disadvantages Of Addition Silicon:?

Hydrophobic Decrease Ability Of Wet ting ⟶ Water Lover {الحل}

BUT!!!

- When we add water lover the material will be stiff like polyether.
- Avoid using gloves containing sulfer because it inhibit setting.

- Polyether accelerated by?

1- temperature

2- Base\accelerator Ratio

- medium, putty polyether + addition silicon may used for monophase or single viscosity technique.

- Poly Sulfide

have the highest tear strength.