

# BioPlastics



Muhammad Qasim Jamali



### Ingredient List



Ingredient 01



Ingredient 02



Ingredient 03



Ingredient 04



QR CODE

### Preparation Steps



### Material Assessments

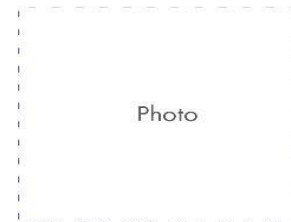
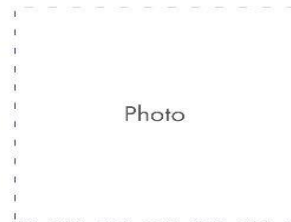
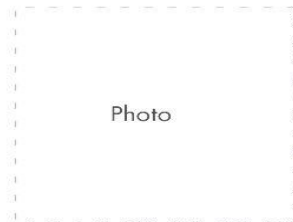
hard  soft  
smooth  rough  
matte  glossy  
elastic  not elastic  
strong  weak

opaque  transparent  
tough  ductile  
light  heavy  
fibred  not-fibred

## RECIPE 01

Forming Technique

References



STUDENT NAMES

Muhammad Qasim Jamali



### Ingredient List



Water



Tea



Corn Starch



Gliserin

QR CODE

### Preparation Steps



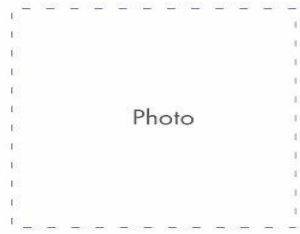
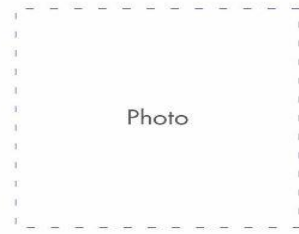
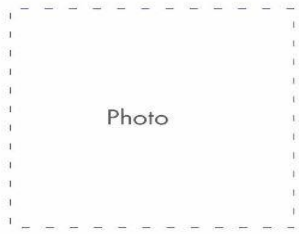
### Material Assessments

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smooth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	rough	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
matte	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	glossy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
elastic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not elastic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
strong	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	weak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
opaque	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	transparent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tough	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ductile	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
light	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heavy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not-fibred	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## RECIPE 02

Forming Technique

References





### Ingredient List



Ingredient 01



Ingredient 02



Ingredient 03



Ingredient 04

### Preparation Steps



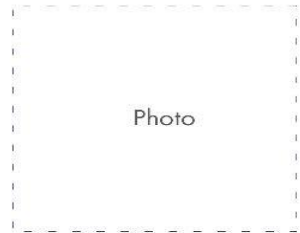
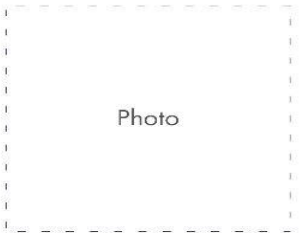
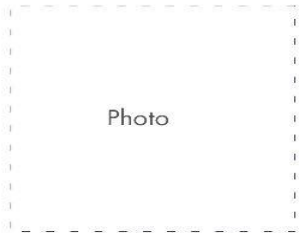
### Material Assessments

hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	soft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
smooth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	rough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
matte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	glossy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
elastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not elastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
strong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	weak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
opaque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	transparent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ductile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heavy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not-fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## RECIPE 03

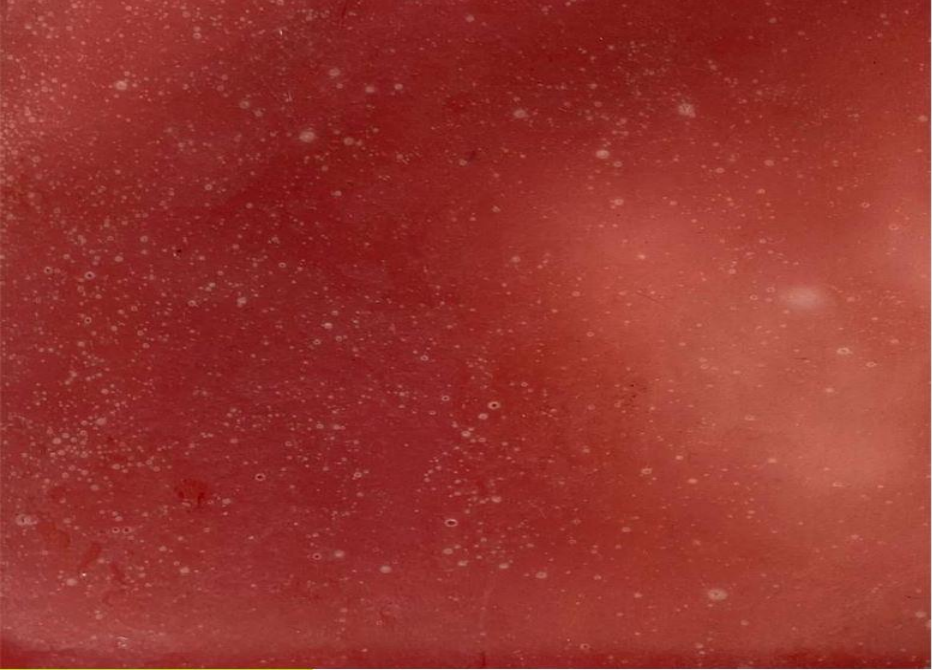
Forming Technique

References



STUDENT NAMES





### Ingredient List



Ingredient 01



Ingredient 02



Ingredient 03



Ingredient 04

### Preparation Steps



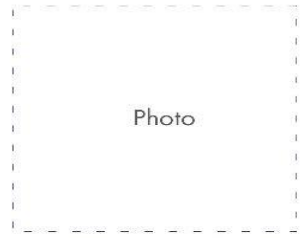
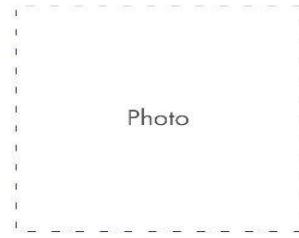
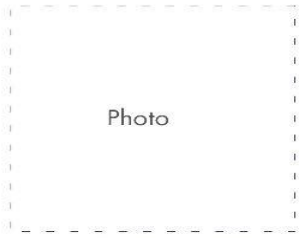
### Material Assessments

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smooth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	rough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
matte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	glossy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
elastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not elastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
strong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	weak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
opaque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	transparent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ductile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heavy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not-fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## RECIPE 02

Forming Technique

References



STUDENT NAMES Muhammad Qasim Jamali



### Ingredient List



Ingredient 01



Ingredient 02



Ingredient 03



Ingredient 04



### Preparation Steps



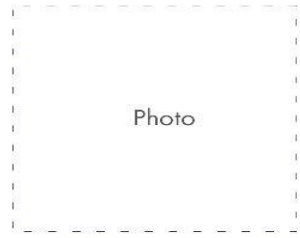
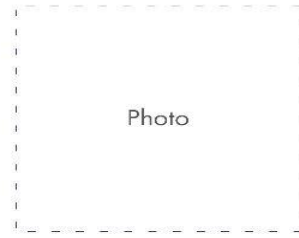
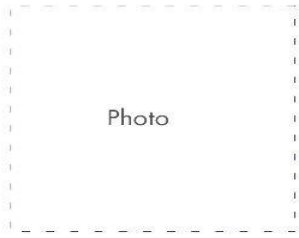
### Material Assessments

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smooth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	rough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
matte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	glossy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heavy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not-fibred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## RECIPE 03

Forming Technique

References



STUDENT NAMES

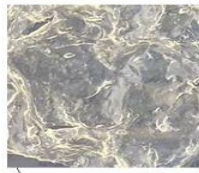
Muhammad Qasim Jamali



S-1



S-2



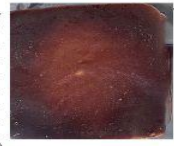
S-3

Starch based samples

S1,2,3



G-1



G-2



G-3

Gelatin based samples

G1,2,3

S-1  
 -30gr Cornstarch  
 8.4gr Glycerin  
 -4.2gr Vinegar  
 -60gr Water  
 30gr milk  
 8.4gr oil

oven:   
 air fryer:   
 air dry:   
 ...C

S-2  
 -25gr Cornstarch  
 4.2gr Glycerin  
 4.2gr Vinegar  
 -40gr Water  
 4.2gr Tea

oven:   
 air fryer:   
 air dry:   
 ...C

S-3  
 -30gr Cornstarch  
 -4.2gr Glycerin  
 -4.2gr Vinegar  
 -60gr Water

oven:   
 air fryer:   
 air dry:   
 ...C

Drying Method

Temperature

Time period

..hours/1.days

12.hours/..days

12.hours/1.days

G-1  
 -45gr Gelatin  
 8.4gr Glycerin  
 -60gr milk  
 -75gr Water

oven:   
 air fryer:   
 air dry:   
 ...C

G-2  
 -30gr Gelatin  
 -9gr Glycerin  
 -30gr chocolate powder  
 -90gr Water

oven:   
 air fryer:   
 air dry:   
 ...C

G-3  
 -20gr Gelatin  
 8.4gr Glycerin  
 -75gr Water

oven:   
 air fryer:   
 air dry:   
 ...C

Drying Method

Temperature

Time period

18.hours/3.days

12hours/2.days

12.hours/1.days

Observations about the materials and their effects: (gelatin based)

- 1) Slow to dry but maintains its shape well
- 2) When drying tends to stick to every surface
- 3) Has good tensile strength and flexibility
- 4) Matte finish

Observations about the materials and their effects (starch based)

- 1) Cooked very quickly and also set very quickly
- 2) Adding dry extra ingredients made it very tough and brittle
- 3) When placed in direct sunlight it has a tendency to warp its shape drastically
- 4) Has a very leather like exterior

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