Safety Instructions

Use a lab coat or apron for keeping yourself clean

Clean your working area before, throughout and after the process.

Don't touch your face and pull your hair back.

Biomaterial Design Casting

An immersive demonstration

CASTING
Alginate based Bioplastic

This manual is based on the recipe of Anastasia Pistofidou, member of Remix El Barrio collective and is developed by Fab Lab Barcelona at IAAC for the SHEMAKES project.

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Materials & Tools

Materials

- 4gr Sodium Alginate
- 200ml Water
- 8gr Glycerin
- Olive Oil
- Dried shredded food waste (coffee grains, orange peels, avocado pits, eggshells, tea leaves, etc.)

For Spraying :

- 10 gr calcium chloride
- 100 ml water

Tools

- Blender
- Pot
- Embroidery hoop D: 20cm
- Texture dense fabric
- Digital Scale
- Sprayer bottle
- Syringe

Safety Equipment

- Kitchen paper
- Disposable gloves
- Lab Coat
- Oven glove

Alginate based bioplastics

Step by step instructions

Process overview

- Step 1 : Prepare the sodium alginate mix
- Step 2 : Prepare the calcium chloride mix
- Step 3 : Prepare and spray the mold
- Step 4: Pour and spray the mix
- Step 5 : Dry
- Step 6 : Remove from the mold

Step 1: Prepare the sodium alginate mix

- 1a. Add the sodium alginate to the water.
- 1b. Blend the mix until it becomes homogeneous.
- 1c. Add the glycerine and blend again.
- 1d. Add the filler and blend again.
- 1e. Place in the fridge overnight, to lose bubbles.

Step 2: Prepare the calcium chloride mix

- 2a. Mix 100ml of water with 10 grs of calcium chloride.
- 2b. Stirr until completely dissolved.
- 2c. Place the mix in the sprayer bottle.
- 2d. Shake the bottle before use.

Step 3: Prepare and spray the mold

- 3a. Take the waterproof texture dense fabric, place and fix it in the embroidery hoop.
- 3b. Spray the textile mold with calcium chloride.
- 3c. Remove excess with a paper towel.

Step 4: Pour and spray the mix

- 4a. Take the bubble free sodium alginate mix.
- 4b. Pour the mix onto the textile mold.
- 4c. Tap the mold so the mix distributes evenly over the surface.
- 4d. Spray the surface of the mix with calcium chloride.
- 4e. Remove excess with a paper towel.

Step 5: Dry

- 5a. Let dry over a radiator or in a food dehydrator
- 5b. For 40ºC for 24 hrs.

Step 6: Remove from the mold

- 6a. Take out of the frame after 7 days.
- 6b. Pull slowly from the border of the bioplastic until completely detached.

1a

1b

2a

2b

2c

2d

3b

3c

4b

4d

4e

6b