Do it yourself!

Zero-Waste Seaweed Coatings for Cosmetics

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PART OF THE EU MISSIONS

RESTORE OUR OCEAN & WATERS

Co-funded by the European Union

Scientists against plastic

REMEDIES

NATIONAL INSTITUTE OF CHEMISTRY

Equipment and accessories

shampoo balls MACHINE

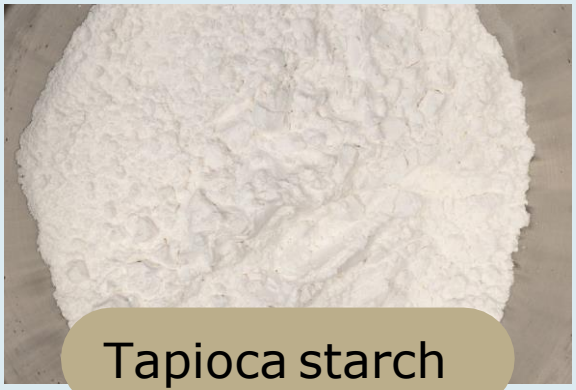
approx. 250 balls

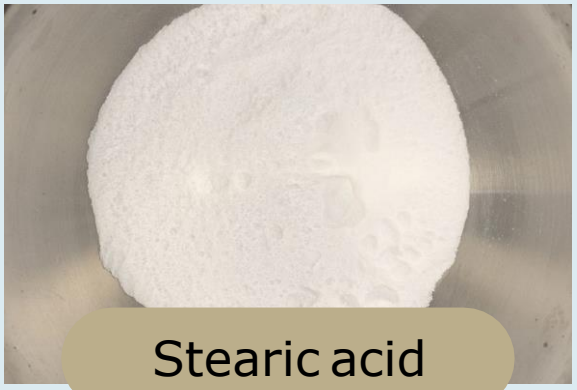
45 min

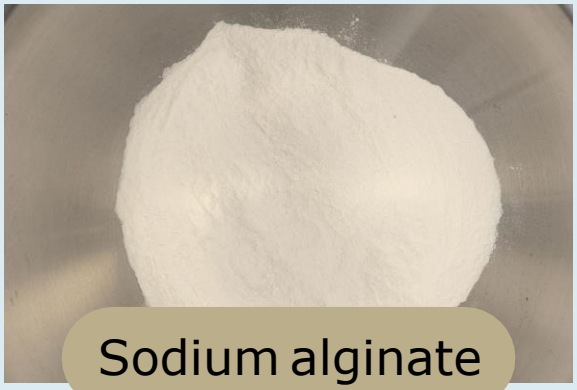
1 large metal bowl
2 small metal bowls
1 wooden bowl
1 spoon
2 small sieves
1 tray
Balls making machine
Dehydrator/dryer
Handheld stick blender

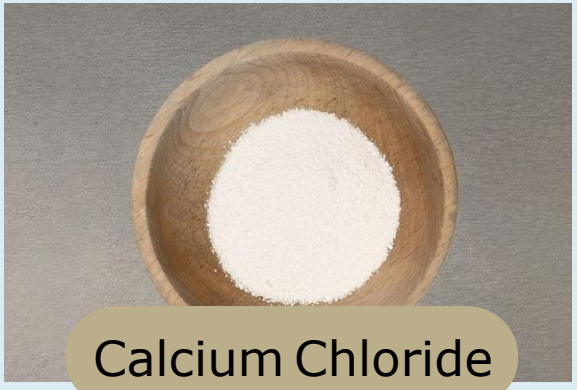
Ingredients

Tapioca starch
Stearic acid
Sodium alginate
Ethanol
Water (aqua)
Dehydrated liquid shampoo
Calcium Chloride
Menthol

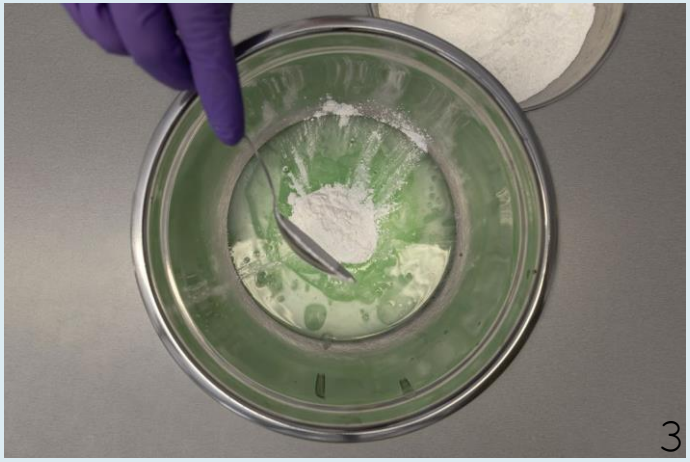








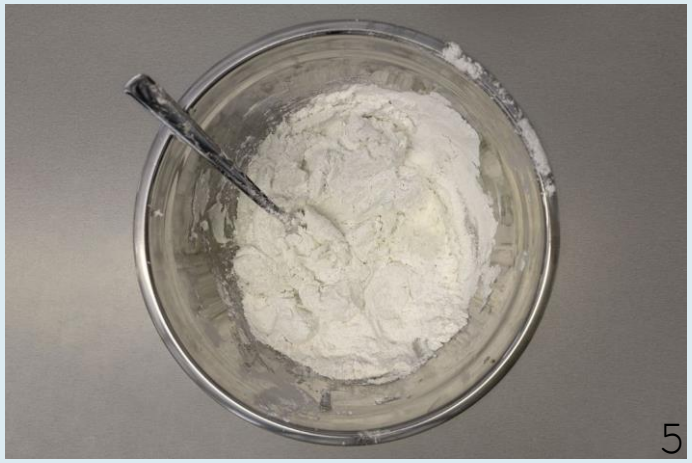
Mixing of the shampoo dough



1 750 g of dehydrated shampoo (water content below 40%).

2 Mix 500 g of Tapioca starch.

3 Add mixed powders to shampoo; approx. 1/3 of at the time.



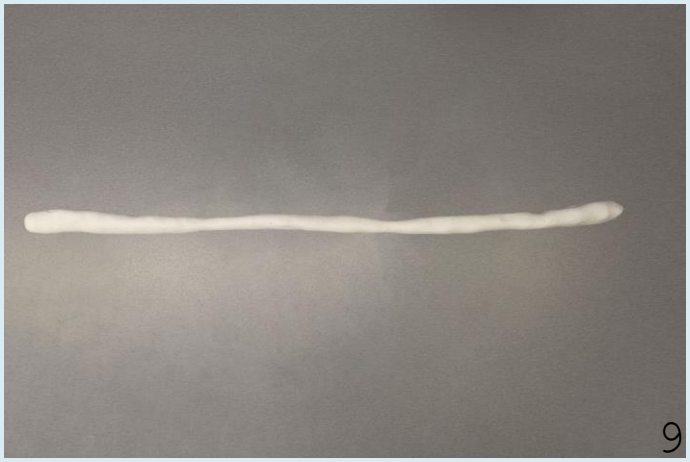
4–6 First, mix the ingredients with a spoon, then knead with your hands.

7 The shampoo dough is ready when it no longer sticks to your hands or the bowl.

Making of shampoo balls via balls machine

Machine


8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10

8-10

Take approx. 30g of the dough and roll it into a 30cm-long shape with a diameter of about 2 cm.

11-13

Add some tapioca starch to the ball machine, then place the 30 cm shampoo dough inside. Gently press the dough to position it in place.

14-15

Turn the lever clockwise until all the shampoo balls drop out to the tray below.

Preparing coating solution 1

Hand Blender

16

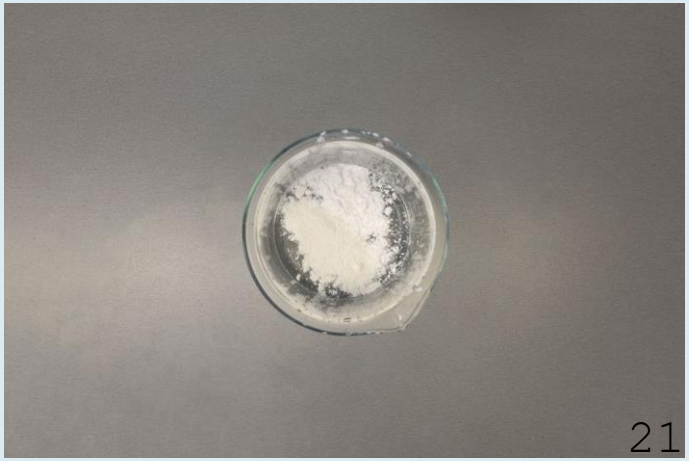
Sodium alginate
20 g

17

Tapioca starch
5 g

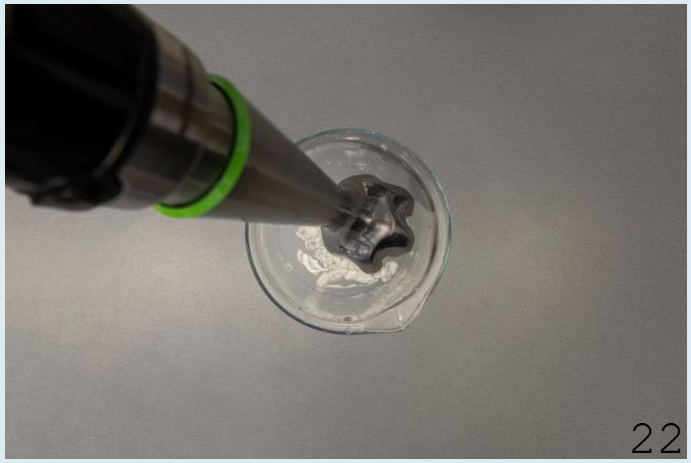
18

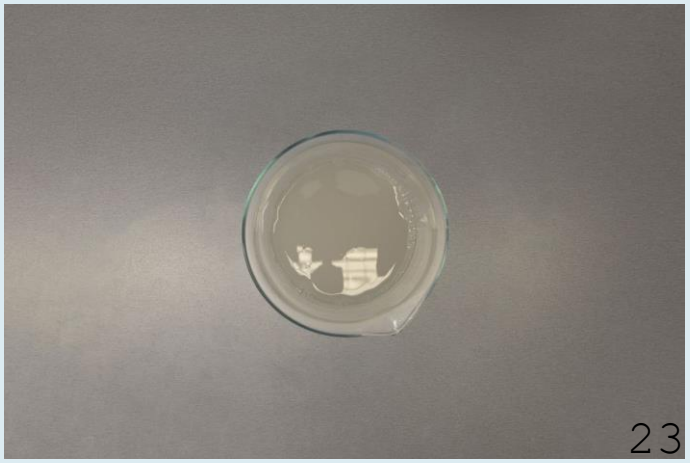
Water
500 ml



19-21

Add sodium alginate and tapioca starch to the water.

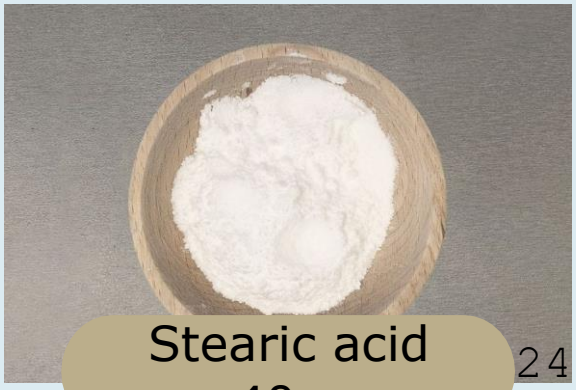




22 Blend until fully dissolved (approximately 3 minutes).

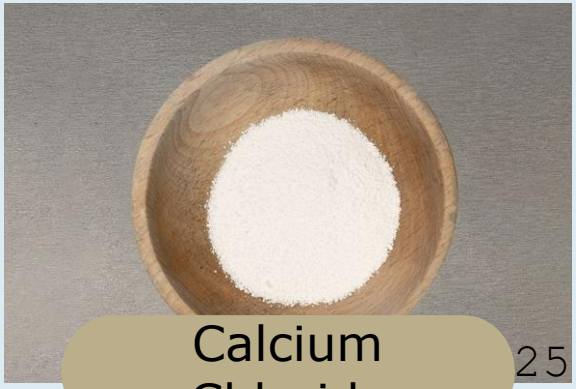
23 Coating solution 1.

Preparing coating solution 2



Stearic acid
40 g

24



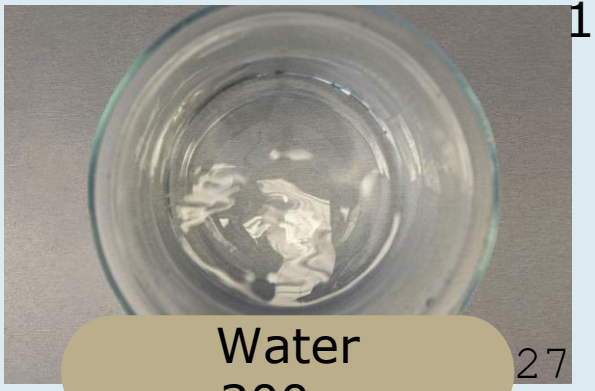
Calcium
Chloride

25

Menthol
1 g

26

10



Water
300 g

27

96% Ethanol
700 g

28

Preparing coating solution 2

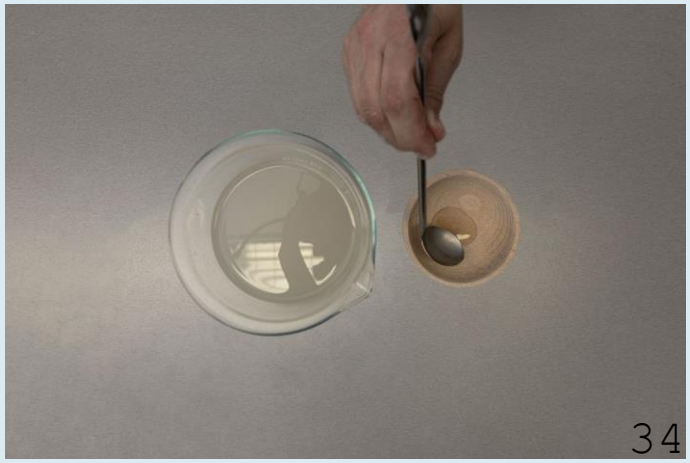
29-31

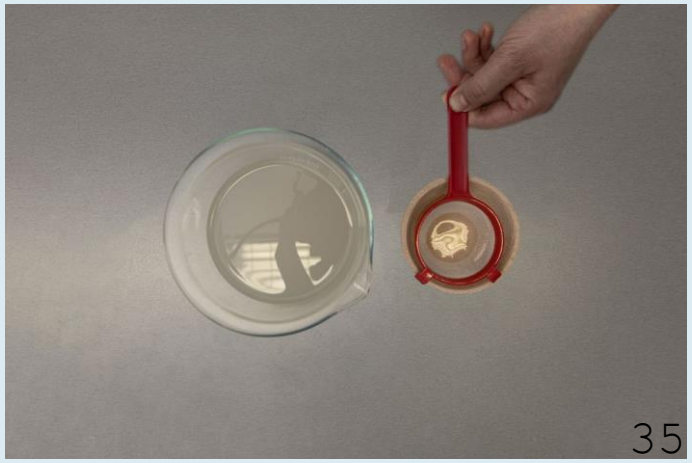
Add all ingredients into one beaker.

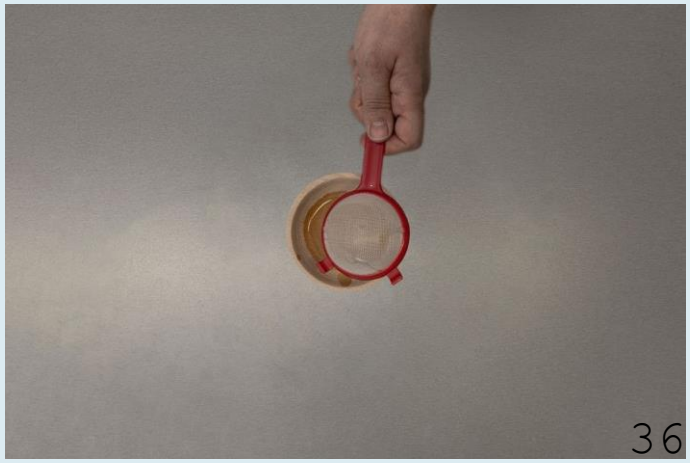
32 Blend until fully dissolved.

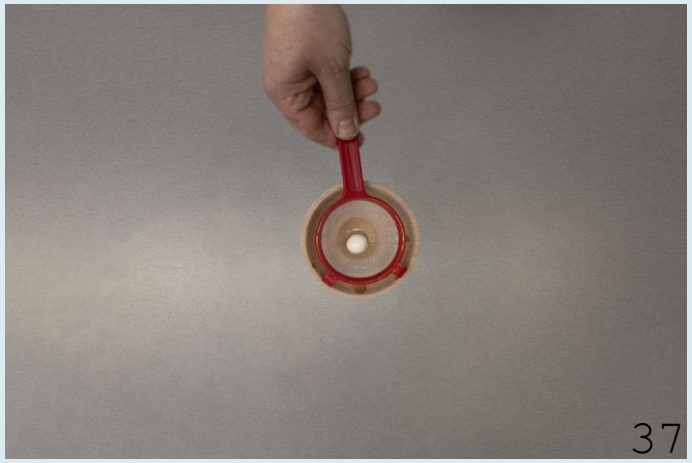
33 Coating solution 2.

Coating the shampoo balls









34 Add 3 tablespoons of Coating Solution 1 to a small wooden bowl.

35–37 Wet the sieve with Coating Solution 1, then add the shampoo balls.

38 Prepare a larger bowl with Coating Solution 2.

39–40 Swirl the shampoo balls in the sieve to achieve a glossy finish, then transfer them to the bowl with Coating Solution 2. Let them sit for at least 10 seconds.

Dehydrator-Dryer

41 Use another sieve to pick up the coated shampoo balls.

42 Place the shampoo balls in a container to dry for a few minutes.

43 As a final step, use an oven at 45°C with ventilation mode for 15 minutes.

Optional:

Repeat steps 33-40 multiple times for a thicker coating.

Zero-Waste Packaging Options

44 Refillable container – for home use.

45 Shelf storage without packaging – a minimal-waste option.

46 Paper box – ideal for travel.

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Funded by the European Union

Gender dimension was considered in creation of this document. The colors and fonts used are dyslexia- and ADHD-friendly.

PIGMENTS

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STANDARD

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