



Erasmus+



"The Town I Want to Live in: A Sustainable Approach"

ESJS  
MAFRA

## "OUROBOROS"

### Producing soaps from used cooking oil!

Rodrigo Lourenço and Afonso Cardoso,  
11<sup>th</sup> grade students at *Escola Secundária José Saramago*, Mafra  
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#### Reagents:

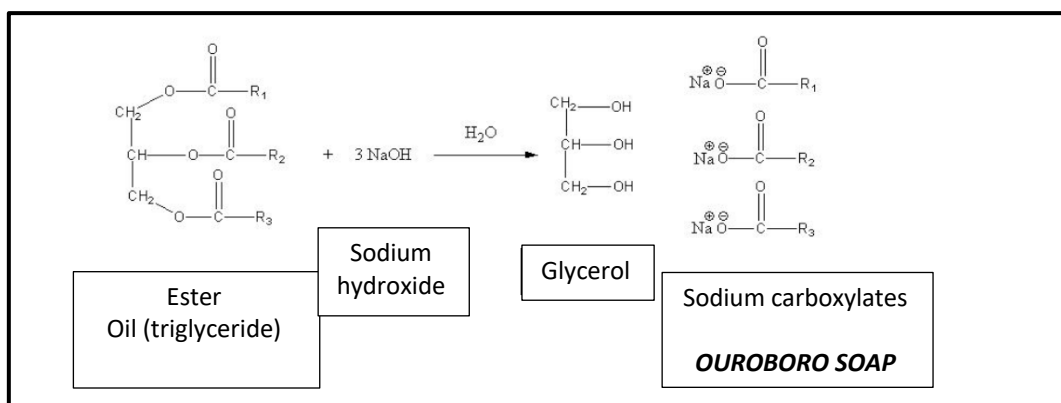
- Sodium Hydroxide, NaOH (150 g)
- Water (260 mL)
- Ethanol (50 mL)
- Used cooking oil (1 L)
- Lavender food flavouring and colouring
- Orange food flavouring and colouring

#### Laboratory Materials:

- 2 100 mL beakers
- 2 400 mL beakers
- 1 1500 mL beaker
- 1 glass rod
- 1 glass funnel
- 1 spatula
- 1 Petri dish
- Safety glasses
- Gloves
- 1 heating plate
- 1 analytical balance
- plastic container (1.0 L)
- 1 hand blender

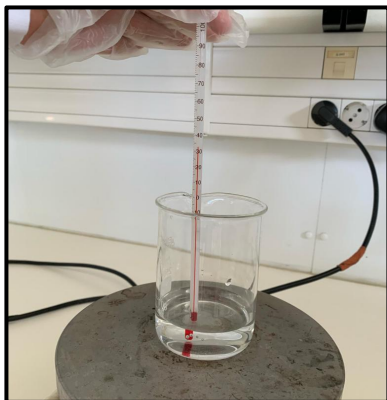
To produce two types of soap - one with a lavender scent and the other with an orange scent, adapt the quantities, respecting the proportions.

The reaction to obtain soap from used cooking oil is expressed in the following diagram:



**Procedure for the soap preparation:**

1. Heat the water in a 400 mL beaker until it reaches a temperature of approximately 40 °C.



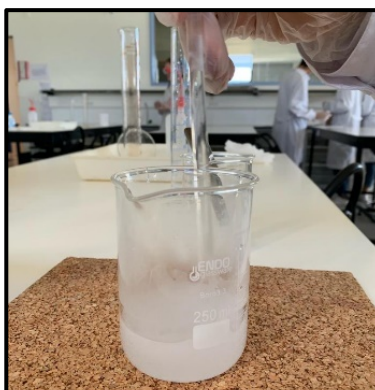
Heating the water

2. Place the sodium hydroxide in a 400 mL beaker, using a spatula.



Measuring the mass of NaOH

3. Dissolve the sodium hydroxide in the heated water until it is fully dissolved.



NaOH dissolution

- Heat the used cooking oil in a 1500 mL beaker to approximately 40 °C.



Measuring the volume of used cooking oil to be heated

- Using a funnel, add the used cooking oil and the sodium hydroxide solution to the plastic container.



Mixing the oil with the NaOH solution

- Mix for 3 minutes, using a hand blender.



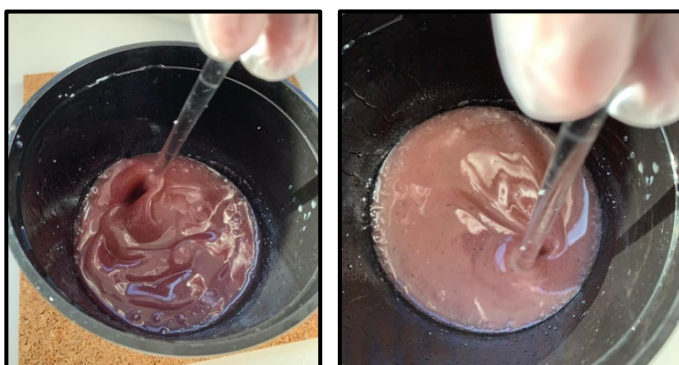
Mixing with the hand blender

7. Add the ethanol.



Measuring the volume of ethanol

8. Add 20 mL of the food flavouring and colouring and mix for about 20 minutes, by alternating the use of the glass rod and the hand blender.



Mixture of food flavouring and colouring

We deliberately chose not to follow so closely the proportions indicated for the food flavouring; we added a little more to obtain a more intense olfactory product. The same applied to the food colouring so as to have colourful soaps.

9. Wait about 15 days for the soaps to solidify.



**RESULT:** wonderful smelly soaps!...