

PRODUCTION OF A SOAP

Vegetable and animal fats and oils (e.g. olive, almond or coconut oil) consist of fatty acids and glycerol. Three fatty acid molecules are bound to each glycerol molecule in the form of an ester group (fatty acid triglyceride). This ester bond plays a central role in the saponification process.

With the aid of a strong alkali (in this case sodium hydroxide solution, NaOH), the fatty acid molecules are separated from the glycerol. This saponification reaction is therefore also called ester cleavage.

Materials:

You will need: kettle, scales, heating plates, glass rods/spoons, beakers 100 mL

or porcelain crucibles, silicone moulds, pipettes or graduated cylinders

Chemicals: Cold water/ice water, water, vegetable oil, ethanol, 30% sodium hydroxide solution

STEPS FOR THE PRODUCTION

PREPARATION

Step 1. Pour 100 mL of water into a beaker.

Step 2. Dissolve 30 g of sodium hydroxide platelets in the water.

Attention: A strong heat development can occur. The beaker should therefore stand in ice water (batch for 5 soaps).

Step 3. Add table salt to 500 mL of water until a brine is formed. You can recognize this by the fact that no more salt dissolves and can be seen as a white residue on the bottom. The residue is not used any further!

PRODUCTION OF THE FAT PHASE

Step 4. Put 1 tablespoon (10 g) of oil in a beaker.

Step 5. Add 12 mL ethanol and 6 mL sodium hydroxide solution (30%) to the oil.

Step 6. Heat the mixture while stirring in a water bath for approx. 15 min. The oil should no longer be visible after this.

Step 7. Place the beaker in ice or cold water to cool.

FINISHING THE SOAP

Step 8. Boil 30 mL of water.

Step 9. Add the boiling water to the fat phase, stirring constantly.

Step 10. Add 40 mL of the already prepared brine to the mixture. Stir again.

Step 11. Pour the soap mixture into the silicone mold.

Step 12. The soap must rest for a few more days.

Step 13. You may take an already finished soap.