STUDY OF THE SURFACE TENSION OF WATER AND THE INFLUENCE OF SURFACTANTS ON THE SURFACE TENSION OF WATER.

Experiment:

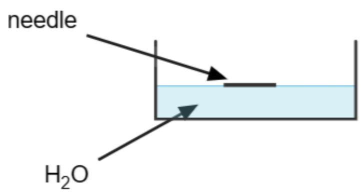
Glassware & Laboratory Equipment:	Reagents
• Crystallizer • 2x Petri dish • glass rod • beaker • laboratory spoon • tweezers • needle	• distilled water • pepper • detergent (dish soap)

a)

Instructions:

Pour distilled water into half the volume of the crystallizer. Then, using tweezers, try to place the needle on the surface of the water. In case you don't get it right, try doing it with your fingers.

Schema of the experiment:



Observations:

The needle floats on the surface of the water.

Conclusions:

The water is covered with a thin, elastic membrane that can hold small bodies on its surface.

b)

Carefully pour some pepper on the surface of the water in the crystalliser. Observe the behavior of the pepper on the surface of the water. Then, after a while, touch the detergent with your finger and touch the surface of the pepper water.

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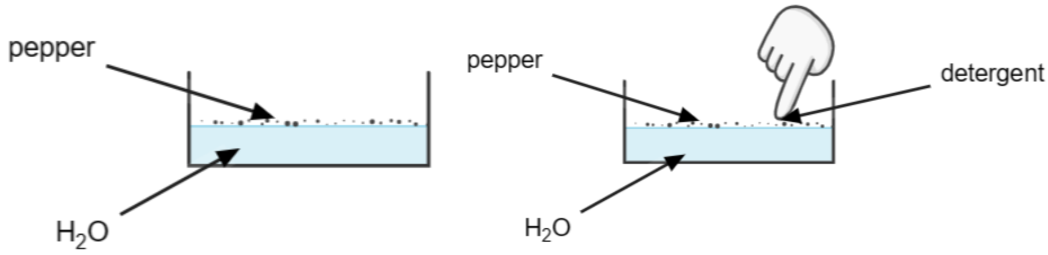
Schema of the experiment:



Observations:

The pepper spread all over the surface of the water. After touching the surface of the water with the detergent, the pepper moved to the sides. The area where the surface of the water has been touched is free of pepper.

Conclusions:

The water is covered with a thin, elastic film that is destroyed after the use of detergents. Detergents getting into the natural environment prevent small insects from living on the surface of the water.

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STUDY OF THE USE OF WATER AS A SOLVENT, PREPARATION OF HOMOGENEOUS AND HETEROGENEOUS MIXTURES AND METHODS OF THEIR SEPARATION.

Experiment:

Glassware & Laboratory Equipment:	Reagents
• 4 small beakers • 3 glass rods • 3 laboratory spoons • 1 large beaker • funnel • porcelain steamer • wooden holder • metal tripod with connector and ring • spirit burner • filter	• distilled water • table salt • potato flour • sand

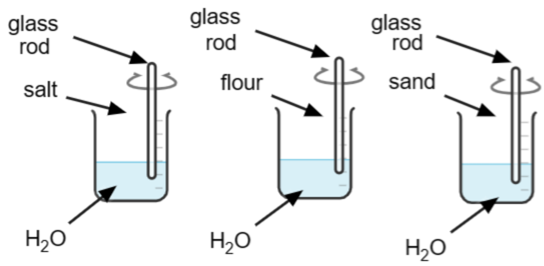
a) **the preparation of homogeneous and heterogeneous mixtures:**

Instructions :

Pour water into 3 beakers halfway up. Then to:

- beaker No. 1 add 2 laboratory spoon of table salt and stir by glass rod.
- beaker no. 2 add 2 laboratory spoon of flour and stir by glass rod.
- beaker no. 3 add 2 laboratory spoon of sand and stir by glass rod.

Schema of the experiment:



Observations:

The salt dissolved completely in the water, the flour and sand did not dissolve in the water.

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Conclusions:

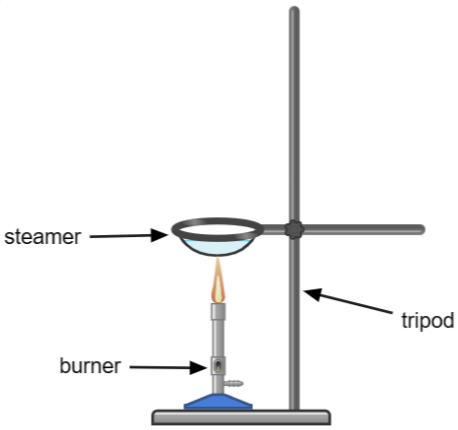
The salt after dissolution cannot be seen in the solution. It formed a homogeneous mixture with water. Its particles are completely invisible to the naked eye. Flour and sand are visible in the water. They formed heterogeneous mixtures. The flour particles are noticeably smaller than the sand particles.

b) Separation of the water-salt mixture.

Instructions:

On a metal tripod, place a metal connector and a ring into which we insert a porcelain steamer. We pour a little mixture of water and salt into the steamer. Place a spirit burner under the evaporator, which we light and heat the steamer.

Schema of the experiment:



Observations:

After a while, we can notice that the water evaporates, but only the salt remains in the evaporator.

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Conclusions:

This method allows to separate substances that dissolve in water to form homogeneous mixtures.

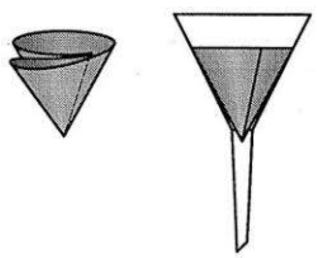
c) **Separation of the water-flour mixture.**

Instructions:

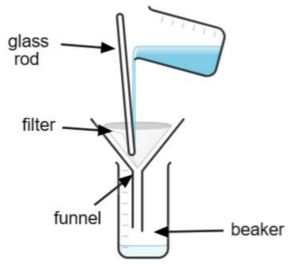
Fold the filter in half, and again in half according to diagram (a). Put it in the funnel and moisten it with water so that it adheres exactly to the funnel. Then prepare the equipment according to the drawing in diagram (b). Slowly pour the water and pepper over the glass rod over the drain. Remember not to pour too much of the solution, it must not be above the drain. Wait for the poured part of the mixture to pass through the filter and pour another portion.

Schema of the experiment:

a)



b)



Observations:

The water with the flour is poured through the filter, the flour stays on the filter and the clear water flows into the beaker.

Conclusions:

The filtration method allows the water to separate from the flour. The flour remains on the drain and the clean water flows into the beaker. This type of method is widely used in everyday life. In households, the role of a filter is very often played by sieves of various sizes, while the filter is directly used in a drip coffee maker.

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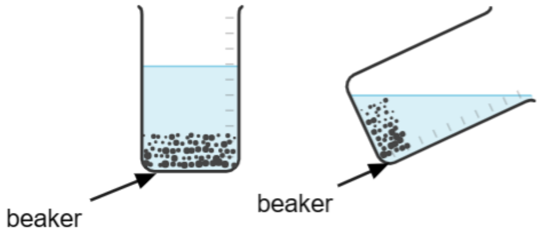
d) Separation of the water-sand mixture.

Instructions:

Leave the water-sand mixture to settle until the sand settles. Then carefully pour off the water from the settled sediment.

Schema of the experiment:



Observations:

The sand sank to the bottom, and the sand remained in the beaker during the pouring process.

Conclusions:

The sand sank to the bottom, in the process of pouring the sand remained in the beaker because it was heavier. This allowed us to separate the mixture. The fall of sand under the force of gravity is called sedimentation. On the other hand, the pouring of liquids from the sludge is called decanting.

Most of the methods presented are used in various industries. When it comes to water, this is especially true for sewage treatment plants. One of the stages of water purification is clarifiers, where the sludge is sedimentated and the clean water flows gently to the next stages of treatment.

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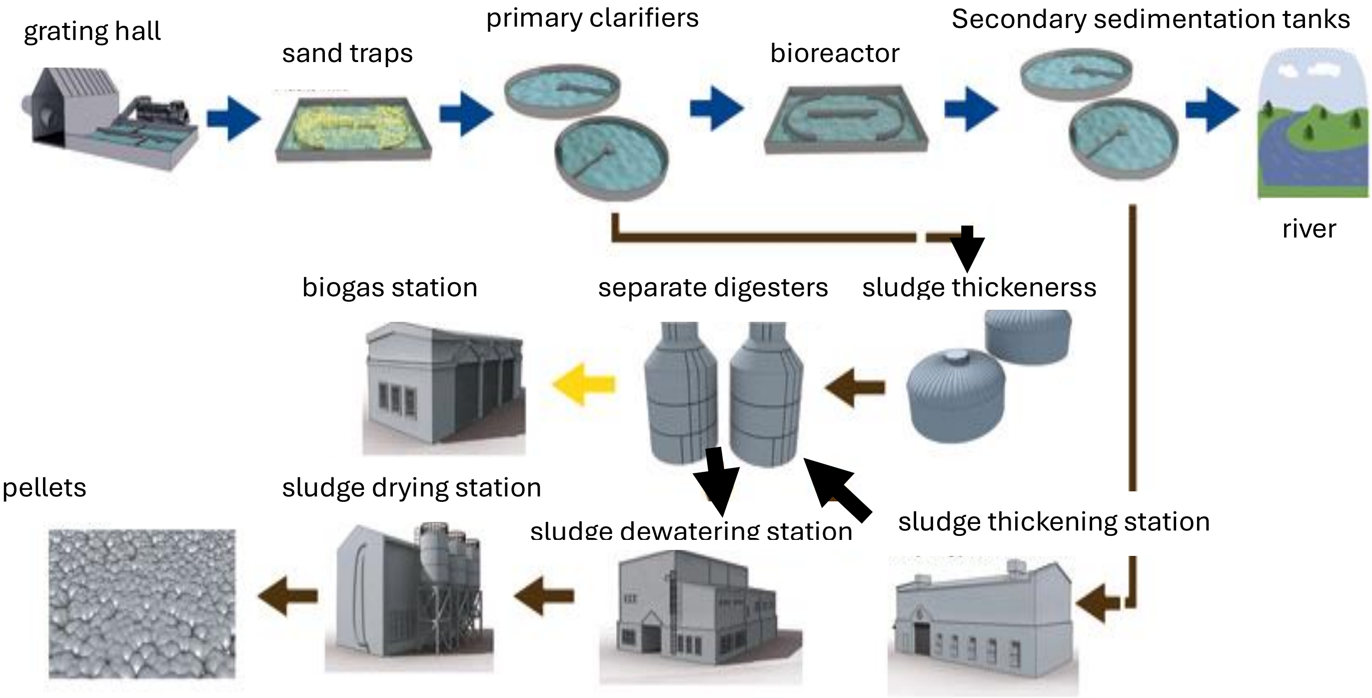

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