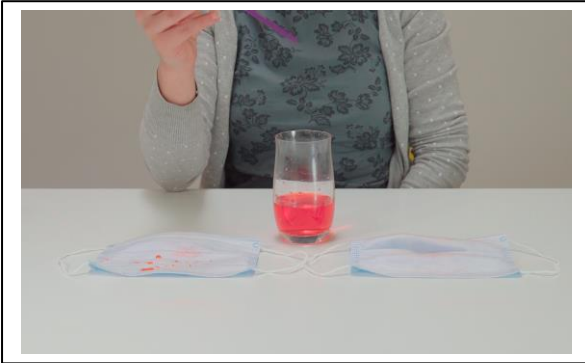


Hydrophobicity and it's destruction



Key words

- Drop of water
- Dew
- Bacteria
- Repulsion

The science behind

Introduction:

In the video we will find out which materials absorb water and which materials repel water.

The sample, which is a new medical mask, initially repels the colored solution and is a hydrophobic material.

The sample, which is a crumpled medical mask, has lost its protective functions because its surface completely absorbs the colored solution.

Hydrophobicity is a property of a substance that repels water. It means lacking affinity for water, and tending to repel or not to absorb water. Hydrophobic molecules tend to be non-polar molecules and group together.

Hydrophobic materials often do not dissolve in water or in any solution that contains a largely aqueous environment.

Hydrophobic materials are often used in chemical separation processes that require the removal of non-polar substances from polar compounds (oil from water, for example).



Hydrophobic surfaces decrease corrosion rates, and therefore are used in corrosion resistance.

The opposite of hydrophobic is hydrophilic. Surface-active agents contain both hydrophobic and hydrophilic groups on the same molecules.



Every day life

We have indicated in our experiment that the characteristics of repelling water in one and the same material could be destroyed.

Therefore, medical masks should only be used for a short period of time and should never be reused after being stored and crumpled in a pocket if we want to preserve their initial characteristics.

Substances which repel water can be found in everyday life:

- In the textile industry (sportswear, workwear)
- In the wood industry (covering wood with a protective layer)
- Waxes – paraffin, carnauba, beeswax
- Steroids – progesterone, testosterone, and other hormones derived from naturally hydrophobic cholesterol
- Greases – lithium-calcium grease, sulphonates, lithium complexes, and perfluorinated oils
- Oils – mineral oil, vegetable oil, and tung oil
- Fats – Molecules joining fatty acids with glycerol
- Alkanes – hydrocarbons such as methane, ethane, propane, and butane



After working your way through this lesson and video, you have learned

- Hydrophobic materials in biology are substances that do not dissolve in water, repel water, or are themselves repelled by water molecules.
- Examples include greases, waxes, steroids, alkanes, and fats. Hydrophobic materials exhibit characteristics of non-polarity, formation of micelles, and an affinity to bond to other non-polar substances.
- Hydrophobic substances are useful in molecular folding, nanotechnology, and biomedicine. They also add to energy efficiency.

