

Viscosity, Flow Rate, Cohesion, and Adhesion

How thick a fluid is known as the VISCOSITY of the fluid.

The viscosity of a fluid is determined through that fluid's FLOW RATE.

The VISCOSITY of a liquid is closely related to the fluid's FLOW RATE.

The internal attraction of a fluid's particles is referred to as COHESION.

When particles of a fluid attract themselves to particles of something else we call this ADHESION.

Milk residue left on a glass after consumption is an example of ADHESION.

Balancing a paperclip carefully on the surface of a container of water is an example of COHESION.

The wicking of wax up the wick of a burning candle is ADHESION.



The formation of raindrops as water falls from the sky is COHESION.



Water wetting a sponge or rag is an example of ADHESION.

A honey spoon uses what characteristics of fluids:

COHESION and VISCOSITY.



Fill in the information from the video that you see at the following link:

https://youtu.be/P_jQ1B9UwpU

What are the three factors that affect Viscosity:

1. *The strength of the intermolecular bonds*
2. *The size and shape of the molecules the smaller the molecule and the more polar it is, the lower the viscosity*
3. *The temperature (the warmer the substance, the lower the viscosity).*

Explain why water forms droplets on glass and in air differently:

The intermolecular bonds are strong, and they pull together and minimize the energy of the surface which creates a round surface when only water in the air but when on glass, the water molecules are attracted to the glass molecules and are pulled out and flattens.

Explain why the surface curves differently when water or mercury are placed in a glass container:

The cohesion of mercury is a lot higher than the cohesion and therefore the particles are attracted to each other more than the glass and it forms a convex shape whereas water has a greater adhesion with the glass and therefore it creates a concave shape as it creeps up the glass.

Explain why a paper clip or bug stays on top of the water:

The paper clip can be supported by the surface tension of the water since the cohesive force or cohesion is very high for water since it is a polar molecule. a bug also can stand on water since it has repellent molecules on its feet or body and the surface tension is high for water. Humans cannot stand on water (with few exceptions), due to their relatively large mass and resulting large gravitational pull).

What is capillary action and what makes this happen?

Capillary action is the drawing of water or other liquids up a material or space against the force of gravity. It happens because the adhesive force of a small liquid particle is greater than gravity and therefore, the liquid will flow up a small tubular surface. we see this in cloth, paper and in living things like plants that take water from the ground and transport it up to the top of the plant.