

Liquids

Skills to Develop

- Explain some of the properties of liquids
- Distinguish cohesive and adhesive forces

In general, liquids are harder to describe than gases (in which interactions between particles are simple collisions) and solids, in which particles stay mostly still in an organized arrangement. So we will only describe some properties here. Certain properties of liquids also depend on the intermolecular forces, like the **viscosity** and **surface tension**. These roughly describe the shapes liquids take when poured, or as droplets, etc.

Viscosity

Viscosity means how thick or sticky a liquid is. For instance, water pours easily and quickly, so it is pretty low viscosity. Honey is a thick, sticky liquid that pours slowly, so it has higher viscosity. Viscosity depends on how easily the molecules can flow past each other. The smaller they are, and the weaker the forces between them, the easier they flow. If the molecules are big and flexible, they might be able to get a bit tangled together, and that could make them flow more slowly.

Surface Tension

Surface tension means how much the liquid wants to minimize its surface area. If the intermolecular forces are big, then molecules would rather be inside the liquid where they have favorable intermolecular interactions instead of being on the surface. This could make the liquid pull itself into rounded shapes to make the surface area smaller. You've probably seen water do this, like on a non-stick pan, because water has strong hydrogen-bonds. In this case, they are called **cohesive forces**, which means forces that pull the material together. (A cohesive team is very close and works well together.) On the other hand, water can have good interactions with glass surfaces, so it doesn't mind so much spreading out on glass. In fact, the forces that make water stick to glass, called **adhesive forces** are bigger than the cohesive forces in water, which is why the water in a glass tube is higher around the edges.

In contrast, mercury doesn't spread out over glass, and in a glass tube, it is higher in the middle. This means that mercury has bigger cohesive forces than adhesive forces toward glass.

Outside Link

- [CrashCourse Chemistry: Liquids](#) (11 min)

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