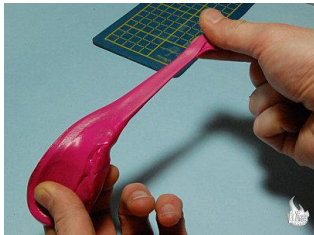


# What is a fluid?

A **fluid** is anything that flows. Liquids and even gases are classified as fluids.

Did you know that **silly putty** can be considered a fluid?



**Viscosity** is a property that can determine if a fluid will act like a solid.

Viscosity is a measure of the resistance of the fluid when it is deformed.

Basically it's the "thickness" of the fluid.

**Water** has low viscosity, but honey has high viscosity.

# Newtonian and Non-Newtonian Fluids

**Bingham Plastics** act as a rigid body until a certain force is applied, then it acts as a liquid. **Toothpaste** is a Bingham Plastic.

**Pseudo-plastics** (shear thinning) decrease in viscosity when more **force** is applied. Example of pseudo-plastics include: nail polish, lava, **ketchup**, and whipped cream.



**Dilatants** (shear thickening) increases in viscosity as more force is applied. **Cornstarch** and silly putty are both dilatants.

# Careers in Fluid Mechanics

- Aerodynamics of cars and airplanes
- **Renewable energy** with wind turbines
- Hydraulic systems in cars
- Designing sports equipment (golf balls)
- Pump systems

## Fluids Word Search



Try to find all the words in **bold**

## Newtonian and Non-Newtonian Fluids

**Newtonian** fluids have constant viscosity.

The more you push on the fluid, the more the fluid moves. They act how you would expect a **liquid** to act. Examples of Newtonian fluids are water, oil, and gasoline.

**Non-Newtonian** fluids do not always have constant viscosity. They don't behave like a normal liquid would. There are several different types of Non-Newtonian fluids.

Several different types:

- Bingham Plastic
- Pseudo-plastic
- Dilatant

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Pool Filled with a Non-Newtonian Fluid Link:  
<http://www.youtube.com/watch?v=f2XQ97XHjVw>

# Walking on Fluids



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