



Another Viscosity and Temperature Experiment

Not all liquids are the same. Some are thin and flow easily. Others are thick and gooey. A liquid's resistance to flowing is called its viscosity. Honey and corn syrup are more viscous than water.

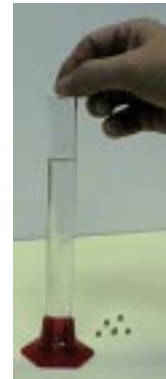
Viscosity is an important property of drilling fluids. The more viscous the fluid, the more easily it will suspend cuttings and carry them up to the surface. On the other hand it requires more pressure to pump very viscous fluids and they are harder to wash off the cuttings.

The viscosity of most liquids is effected by temperature. To test this we experimented with corn syrup.

Equipment and Materials:

To conduct this experiment you will need:

- One or more graduated cylinders
- A stopwatch that is accurate to 0.1 or 0.01 seconds
- 20 pebbles, all about the same size and shape, or 20 steel balls
- A thermometer
- Corn syrup
- A beaker with ice water
- A hot plate and beaker with water, or a microwave oven
- A chart like the one on the next page to record your results.



The Experiment:

Here's what to do:

1. Fill a graduated cylinder with corn syrup.
2. Measure the temperature of the liquid and enter it in the column under "temperature" on the first line of the chart.
3. Pick two marks on the scale of the graduated cylinder to use as reference points, e.g. 40ml and 10ml. drop a steel ball into the liquid
4. Click the stopwatch on when the ball passes the top mark (40ml)
5. Click the stopwatch off when the ball passes the lower mark (10ml)
6. Record your results on the chart
7. Repeat steps 4 through 6 until you have completed 5 drops.

Now repeat the experiment with corn syrup at different temperatures. Use the hot water bath or microwave oven to get it to a higher temperature. Use the ice bath to lower the temperature.

Important Note:

Be careful when heating the corn syrup. This should be done only with adult supervision. The liquid does not need to be very hot. Warming it to about 50°C or 60°C is fine.

**Time it takes, in seconds, for weights to sink
through corn syrup at different temperatures**

	Time in Seconds					
temperature	trial 1	trial 2	trial 3	trial 4	trial 5	average