SCIENCE PROJECT

Snowstorm in a Boiling Flask

Use common household items—and common chemistry principles—to create a mesmerizing snowstorm in a boiling flask.

What You Need:

- ☐ Boiling Flask; or clear glassware
- ☐ Baby oil
- ☐ Water
- ☐ White Paint
- ☐ Glitter (white or blue)
- ☐ Alka-seltzer

What To Do:

1. Mix about 1 tsp of white paint with about 100 ml of water
2. Add a generous amount of glitter to the mixture
3. Pour the white, glittered water into the boiling flask (or any clear glassware). This should fill your glassware about 1/5th full
4. Fill the rest of the glassware with baby oil. The clear baby oil is less dense than the water mixture and will stay on top
5. Break an alka-seltzer tablet into a few small pieces
6. Drop the alka-selzer pieces in the flask one at a time.
7. Watch as the snowstorm appears!
8. As the reaction slows down, simply add more alka-seltzer.

Tag us with your snowstorm
@homesciencetools

SCIENCE PROJECT

Snowstorm in a Boiling Flask

How it works

This snowstorm works because of two different scientific principles, density and polarity.

Density is the measurement of how compact a substance is – how much of it fits in a certain amount of space. (The scientific equation is density = mass/volume.) If you measure an equal volume of oil and water, you'll find that the water is heavier than the same amount of oil. This is because water molecules are packed more tightly and a cup of water actually has more mass than a cup of oil. Because water is denser than oil, it will sink to the bottom when the two are put in the same container. Density is affected by temperature—the hotter a liquid is, the less dense it will be.

Polarity, in chemistry, applies to bonding. Water molecules are "polar" because they have a lopsided electrical charge that attracts other atoms. The end of the molecule with the two hydrogen atoms is positively charged. The other end, with the oxygen, is negatively charged. Just like in a magnet, where north poles are attracted to south poles ("opposites attract"), the positive end of the water molecule will connect with the negative end of other molecules. Oil molecules, however, are non-polar — they don't have a positive or negative charge, so they are not attracted to the water molecules at all. This is why oil and water don't mix, and always eventually separate!

In our homemade snowstorm we used alka-seltzer to react with the water to produce carbon dioxide gas bubbles. These stick to the water droplets. The water/gas combo is less dense than the oil, so they rise to the top of the flask. At the top, the gas bubbles pop and escape into the air, allowing the dense water to sink back to the bottom again.

Love this FREE Project? Follow us for more @homesciencetools