

RAPID COLOR-CHANGING CHEMISTRY!

YOU WILL NEED:

- 3 clear plastic cups 4 ounces or larger
- A 1000 mg Vitamin C tablet from the pharmacy (you can also use two 500mg)
- Tincture of iodine (2%) also from the pharmacy
- Hydrogen peroxide (3%) yep, also from the pharmacy
- Liquid laundry starch (see below for alternatives)
- Safety goggles
- Measuring spoons
- Measuring cup
- An adult helper

WHAT TO DO

Put on those safety goggles and mash the 1000 mg Vitamin C tablet by placing it into a plastic bag and crushing it with a rolling pin or the back of a large spoon. Get it into as much of a fine powder as possible. Then put all the powder in the first cup and add 2 ounces (60 ml) of warm water.

Stir for at least 30 seconds. (The water may be a little cloudy) Let's call this "LIQUID A"

Now put 1 teaspoon (5 ml) of your LIQUID A into a new cup and add to it: 2 oz (60 ml) of warm water and 1 teaspoon (5 ml) of the iodine. Notice the brown iodine turned clear! Let's call this "LIQUID B." By the way, you're done with LIQUID A – you can put it aside.

In the last cup, mix 2 oz of warm water, 1 Tablespoon (15 ml) of the hydrogen peroxide and 1/2 teaspoon (2.5 ml) of the liquid starch. This is, you guessed it, "LIQUID C"

Okay, that was a lot of preparation, on to the fun part. Gather the friends and family and pour all of LIQUID B into LIQUID C. Then pour them back and fourth between the 2 cups a few times. Place the cup down and observe....be patient....somewhere between a few seconds and a few minutes, the liquid will suddenly turn dark blue!

HOW DOES IT WORK?

This is an example of the chemical reaction know as the IODINECLOCK REACTION. It is called a clock reaction because you can change the amount if time it takes for the liquids to turn blue. (see experiments below) The chemistry of the demonstration gets a bit complicated, but basically it is a battle of chemistry between the starch which is trying to turn the iodine blue, and the Vitamin C which is keeping it from turning blue. Eventually the Vitamin C loses and, bam! – you get instant blueness.

Note: If you do not have liquid starch, you can also use 1/2 teaspoon of corn starch or potato starch. The liquids will be more cloudy and the reaction will happen a bit more slowly, but it's still impressive.

Clean up: Carefully pour all liquids down the drain with plenty of water and wash your hands. Recycle the cups or dispose of them in the trash.

MAKE IT AN EXPERIMENT:

The project above is a DEMONSTRATION. To make it a true experiment, you can try to answer these questions:

1. Does the temperature of the water affect how quickly the liquids turn blue?
2. Does the amount of Vitamin C added (Liquid A) affect how fast the liquid turns blue?
3. Does stirring the liquids more affect how fast the liquids turn blue?

