

Super-Glue Fingerprints Activity

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Introduction:

Certain surfaces make it difficult to retrieve fingerprints. Ninhydrin was useful for porous surfaces. Dusting was useful for smooth non-porous surfaces. A non-porous surface that is not smooth, however, makes dusting and lifting rather difficult. One interesting method for such surfaces, invented in 1982, is to use cyanoacrylate, an ingredient in Super-Glue. By heating the cyanoacrylate in an enclosed area (a glass tank, the inside of a car, etc.), the glue will vaporize, and ultimately attach to the oils of the print, and highlight it in white. The print can then be dyed in order to reveal it more clearly. For the purposes of this activity, however, we will be using a dark surface.

Materials:

1. A one gallon ziploc-style plastic bag
2. Small aluminum tray
3. Coffee mug warmer (a.k.a. cyanoacrylate warmer)
4. Cyanoacrylate (Super-Glue to you!) See the [MSDS \(Material Safety Data Sheet\)](#).
5. Brand-new dark plastic knife (therefore, with no prints!)
6. Scrap of paper with your name on it (so you can easily find your knife) - *Optional; see step 12 of the procedure!*
7. Scotch-style tape - *Optional; see step 12 of the procedure!*
8. Straw
9. Fume hood
10. Gloves, but only for the teacher! (Hey; we only want *the perp's* prints on the knife, right?)

Procedure:

1. After running your fingertips in your hair or along the side of your nose (to get more oils on them), deposit your fingerprints on the black knife, on both the smooth surface of the blade, and the rough surface of the handle.
2. Write your name on the scrap of paper and tape it to the handle of the knife. - *Optional; see step 12 of the procedure!*
3. Place the knives in the plastic bag (about 7 knives per/bag).

4. Place the mug warmer in the bag (plugged in, but turned off) and place them in the fume hood.
5. Add 15 drops of cyanoacrylate to the aluminum tray, and place it on the mug warmer.
6. Turn on the fume hood first, and the mug warmer second.
7. Place the straw part-way into the bag, and zipper the bag shut around the straw.
8. Using the straw, blow air into the bag to inflate it.
9. Quickly remove the straw and tightly seal the bag. *Trust me; you don't want to breathe this stuff! Care must be taken to avoid exposure to the cyanoacrylate fumes, which will slowly vaporize under the heat lamp! See the [MSDS](#) (Material Safety Data Sheet).*
10. Within a few minutes, you will see the prints "develop" as the cyanoacrylate adheres to the oils of the print.
11. After the prints have developed, open the bag (with the fume hood still turned on), turn off and remove the mug warmer and remove the knives; replace the aluminum tray in the bag and seal it. *Be very careful, once again, not to breathe the fumes.*
12. If we did not use the piece of paper to label each knife, we can still match the knife to the person. How? Easy! We could use the fingerprint cards, just as we did with the [ninhydrin activity](#)! The plastic knife with your prints is yours to keep!

Data/Results:

Your datum is your knife, with the fingerprint(s) highlighted in white by the cyanoacrylate.

Conclusion:

There is no conclusion for this activity, but you must demonstrate your understanding of all aspects of this activity on the upcoming [test](#)!